NOVA SCOTIA

Environment and Labour

Reference Guide To The

UNDERGROUND MINING REGULATIONS

Produced by the

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The commentary found in this document is not intended to be an exhaustive interpretation or to constitute legal advice to members of the public. This document is prepared for convenience only, and for accurate reference, the reader should see the official volumes of the legislation.

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Part 1 - Interpretation and Application

Citation

1 These regulations may be cited as the *Underground Mining Regulations*.

Application of these regulations

2 (1) These regulations apply to an underground mine if a person is or is likely to be present.

(2) These regulations do not apply to persons, activities, equipment, buildings and premises on the surface at a mine site that are not integral to the health and safety of persons underground.

(3) Despite subsection (1), these regulations do not apply to the re-entry of a mine in accordance with Section 35 if the employer

(a) does not significantly disturb the ground of the mine;

(b) files a code of practice as required by Section 35;

(c) receives approval from the Director for the code of practice filed under Section 35; and

(d) complies with the requirements of the code of practice approved by the Director.

Application of other regulations

3 (1) Unless a mine or a part of a mine is specifically exempted, all regulations made under the Act apply to a workplace to which these regulations apply.

(2) In the event of an inconsistency between these regulations and any other regulations made under the Act, these regulations prevail to the extent of the inconsistency.

Required adoption of regulations

4 (1) If a condition, activity or hazard to health or safety at a project or surface excavation is substantially similar to a condition, activity or hazard normally associated with a mine, the Director may require that any provision of these regulations respecting the condition, activity or hazard be adopted by the employer as a part of a code of practice under Section 66 of the Act.

(2) At a non-coal mine, a project, or a surface excavation, if flammable gas has been ignited, or flammable gas has been measured in the general body of air in a concentration that is equal to or greater than 0.25% by volume in the air being tested the Director may order that a provision of these regulations that is otherwise applicable only to a coal mine be adopted by the employer as a part of a code of practice under Section 66 of the Act.

Compliance with standards incorporated by reference

5 (1) In the event of an inconsistency between these regulations and a standard incorporated by reference in these regulations, these regulations prevail over the standard to the extent of the inconsistency.

(2) If these regulations require that an object, or activity in relation to an object, comply with an edition of a standard published in a specified year,

(a) if the requirement is to ensure that an object physically conforms to the standard, the object is deemed to comply with the standard if

(i) it conforms to the physical specifications contained in the latest version of the standard published at the object's date of manufacture, or

(ii) in the event that no version of the standard existed at the object's date of manufacture, it conforms to generally accepted engineering principles prevailing at the object's date of manufacture,

unless there is evidence raising a reasonable doubt as to whether the object is adequate;

(b) if the requirement is to ensure that inspection, maintenance, use or other activity in relation to an object is carried out in accordance with the standard, compliance with the standard is required unless it is established that compliance with an earlier version of the standard, or with generally accepted engineering principles prevailing at the object's date of manufacture, is more likely to ensure adequate performance of the object.

Duties of parties

6 If these regulations impose a duty on an employer, the duty is also imposed on a contractor, constructor, supplier, employee, owner or self-employed person, to the extent of their authority and ability to discharge the duty in the circumstances.

Definitions

7 In these regulations,

(a) "abandoned", in relation to a working or excavation, means

(i) that the working or excavation is caved or sealed and no further work is intended, or

(ii) if the working or excavation is neither caved nor sealed, that it is not regularly inspected and that it is not ventilated by any means;

(b) "Act" means the *Occupational Health and Safety Act*;

(c) "active working" means a working that is not abandoned;

(d) "adequate" means sufficient to protect a person from injury or damage to health;

(e) "airway" means any underground opening or passage through which ventilation air is carried;

(f) "auxiliary access" means a mine opening such as a shaft, that is used for transporting persons to and from the underground and is additional to the primary access;

(g) "auxiliary fan" means a fan used for ventilation underground at a mine that cannot be ventilated by the main fan without separate mechanical devices or by a booster fan without separate mechanical devices;

(h) "auxiliary ventilation" means a method of supplementing the ventilation system in a mine to draw air from the primary airway and force it into other areas of the mine such as crosscuts, splits, and raises;

(i) "blast" means a detonation of a charge or a number of charges, either simultaneously or consecutively;

(j) "blaster" means a person who

(i) carries out the duties of a blaster under these regulations, and

(ii) meets the qualifications set out in Section 454;

(k) "blasting" means the activities associated with a blast, including the storage, handling, transportation, preparation, and use of explosives, and drilling conducted at a blasting area or in relation to the use of explosives;

(l) "blasting area" means a zone extending at least 30 m in all directions from a place

(i) in which explosives are being prepared, handled or loaded for firing or in which misfires exist or are believed to exist, and

(ii) from which hazards must be excluded to avoid an accidental explosion;

(m) "booster fan" means a fan that is used at a mine to assist in the primary ventilation of the mine in conjunction with a main fan;

(n) "CANMET" means the mining and mineral sciences laboratories of Natural Resources Canada;

(o) "CSA" means the Canadian Standards Association;

(p) "cage" means an enclosed platform that is used in a shaft to transport materials and people, but not to transport ore, coal, or rock;

(q) "charge" means an explosive loaded in a hole, and including a shot at a coal mine, unless the context otherwise requires;

(r) "coal mine" means an underground mine developed or constructed for the purpose of opening up, proving, removing or extracting coal;

(s) "competent person" means a person who is

(i) qualified because of that person's knowledge, training and experience to do the assigned work in a manner that will ensure the health and safety of every person in the workplace, and

(ii) knowledgeable about the provisions of the Act and regulations that apply to the assigned work, and about potential or actual danger to health or safety associated with the assigned work;

(t) "construct" includes to erect, install or assemble;

(u) "counterweight" means a weight used to offset the weight of a shaft conveyance;

(v) "document" includes a procedure, program, specification, plan, report, notice, or record;

(w) "electrical installation" means the wires, machinery, apparatus, appliances, devices, material and equipment used or intended for use for the generation, transmission, distribution, supply and use of electrical power or energy, and includes a powerline and powerline equipment;

(x) "engineer" means a competent person who is an engineer within the meaning of the *Engineering Profession Act*;

(y) "examine" means to observe or review in order to ascertain the quality or condition of documents or things, and includes, but is more detailed and thorough than, to inspect, and examination has a corresponding meaning;

(z) "factor of safety" means, in relation to equipment, the number of times the maximum load permitted by an object's design exceeds the maximum load to which the object is likely to be subjected;

(aa) "fire-extinguishing equipment" means equipment that is capable of extinguishing fire and can be used by a person to fight a fire in a particular place;

(ab) "fire-suppression system" means a device for suppressing fire that automatically activates to suppress a fire in a particular place, or if the device is located on mobile equipment, may be activated to suppress a fire automatically, manually, or both;

(ac) "first-line supervisor" means a supervisor who is not responsible for any other supervisors;

(ad) "flameproof", in relation to an

electrical installation, means that the electrical installation is in an enclosure that

(i) can contain an internal explosion without permanent distortion of the enclosure,

(ii) ensures that an internal explosion cannot be transmitted to the surrounding atmosphere, and

(iii) has a temperature at all points on the surface of the enclosure that is lower than the spontaneous ignition temperature of the surrounding gases, vapours or dusts;

(ae) "flammable gas" means any product, material or substance that, at normal atmospheric pressure and temperature, forms a flammable mixture with air

(i) when in a concentration of 13% or less by volume, or

(ii) over a concentration range of at least 12% by volume,

and includes methane;

(af) "flammable material" means a material that meets the criteria for a Class B controlled product as set out in the *Controlled Products Regulations* under the *Hazardous Products Act* (Canada), and includes fuel, but does not include coal or wood;

Similar to the definition of "flammable material", a "flammable liquid" is a liquid that meets the criteria for a Class B controlled product as set out in the *Controlled Products Regulations* under the *Hazardous Products Act* (Canada), and includes liquid fuel. (January 10, 2005)

(ag) "gassy zone" means any area of the underground at a coal mine that is not designated as a non-gassy zone;

(ah) "general body of air" means air underground at a mine that is at least 30 cm away from the roof, rib, side, face or floor, of the mine;

(ai) "ground control procedure" means the procedure required in Section 52 to prevent the unplanned fall of rock;

(aj) "hoist" means a device used for transporting persons or material in a shaft, and includes devices used to transport a cage or skip;

(ak) "hoist operator" means a person who

(i) carries out the duties of a hoist operator under these regulations, and

(ii) meets the qualifications set out in Section 452;

(al) "hoistroom" means a room where the controls for a hoist are located;

(am) "inspect" means to observe or review in order to ascertain the quality or condition of documents or things, and inspection has a corresponding meaning;

(an) "intake air" means air that originates from the surface and is used by a ventilation system, and

(i) in a non-coal mine, has not passed through or by the last working face, or

(ii) in a coal mine, has not passed through or by the last working face of the split or the sealed or unsealed entrances to abandoned workings;

(ao) "intake airway" means an airway through which intake air travels;

(ap) "intrinsically safe"means, in relation to an electrical circuit, incapable of producing a spark or thermal effect of sufficient energy to ignite a mixture of flammable material in air under prescribed test conditions;

(aq) "loading face" means a working face where explosives are loaded in a hole;

(ar) "magazine" means a building, storehouse, structure or area where explosives are kept or stored, but does not include a temporary storage box;

(as) "main fan" means a fan used for primary ventilation of the mine, but does not include a booster fan;

(at) "maintain" includes to store, service, clean, adjust and repair;

(au) "manager" means the supervisor who is responsible for the surface and underground at a mine;

(av) "methane drainage" means a process of drilling holes into coal strata and removing methane contained in the coal strata;

(aw) "mine" means a work or undertaking for the purpose of opening up, proving, removing or extracting any metallic or non-metallic mineral or mineral-bearing substance, coal, rock, earth, clay, sand or gravel, or the shutdown, closure or abandonment of the work or undertaking, if the working extends or is intended to extend below ground level and, except for the entrances, a shafthead building or a portal house, is completely enclosed in rock, and includes

(i) activities, equipment, buildings and premises on the surface at the mine site that are integral to the health and safety of persons underground,

(ii) shafts in the course of being sunk or driven for commencing or opening a mine, or for searching for or proving the deposits, and

(iii) unless the context otherwise requires, a coal mine and a non-coal mine, but does not include a drill hole or a similar feature, or a work or undertaking if no worker works below ground level;

(ax) "mine car" means a vehicle that is not self-propelled that is used underground to carry persons or materials, and may be part of a train;

(ay) "mine examiner" means a person who

- (i) carries out the duties of a mine examiner under these regulations, and
- (ii) meets the qualifications set out in Section 464;

(az) "mine hoisting plant" means the equipment used in connection with a hoist and includes an engine or other device that provides a source of motive power, transmission equipment, head-frame, sheaves, shaft ropes, shaft, shaft conveyances, shaft sinking equipment, shaft furnishings, hoist controls, counterweights, and signaling and communications equipment;

(ba) "mine rescue team" means the mine workers designated by the employer as mine rescue workers and organized into a mine rescue team in accordance with Section 143;

(bb) "mine rescue team captain" means a person who

- (i) is designated by the employer in that capacity, and
- (ii) meets the qualifications set out in Section 457;

(bc) "mine rescue worker" means a person who

- (i) carries out the duties of a mine rescue worker under these regulations, and

(ii) meets the qualifications set out in Section 455;

(bd) "mine worker" means a person who

(i) has had the training required by Sections 441, 446, and 447, and

(ii) in a coal mine meets the qualifications set out in Section 459;

(be) "misfire" means a charge that for any reason has failed to fire as planned;

(bf) "mobile equipment" means a vehicle used underground at a mine that is powered by other than muscular power, but does not include a shaft conveyance powered by a hoist;

(bg) "MSHA" means the Mine Safety and Health Administration of the United States Department of Labor;

(bh) "non-coal mine" means a mine other than a coal mine;

(bi) "non-combustible" means material, or an assembly of materials, that conforms to ULC standard CAN4-S114-M80, "Standard Method of Test for Determination of Non-Combustibility in Building Materials";

(bj) "non-gassy zone" means an area of the underground at a coal mine that is designated in accordance with Section 188;

(bk) "occupational exposure limit" means an exposure limit set out in the occupational health standards adopted by Section 4 of the *Occupational Health Regulations* made pursuant to the *Health Act*;

(bl) "operate" includes to start, use, handle or stop;

(bm) "panel" means a working in a coal mine from which coal is extracted, but does not include a working required for the development of a coal mine;

(bn) "plan" means, unless the context otherwise requires, a drawing or diagram;

(bo) "primary access" means the main mine opening, such as a shaft, that is used for transporting persons to and from the underground in a mine;

(bp) "production area" means a part of the mine, other than the primary access or an auxiliary access, that consists of panels or stopes and the development workings associated with the panels or stopes, as the case may be;

(bq) "raise" means a vertical or inclined opening in a mine driven from one level to connect with another level, or to explore the ground for a limited distance above or below one level, and includes a winze;

(br) "raise climber" means a mechanically powered platform, temporary or permanent, that is controlled from a cage underneath the platform and used to provide access to the face of a raise or other working area;

(bs) "refuge station" means a place designed to provide a place of safety for mine workers during an emergency that meets the requirements of Sections 146 to 149;

(bt) "return air" means air that has passed through all the working faces of a split;

(bu) "return airway" means an airway through which return air travels;

(bv) "rib" means the wall underground in a coal mine;

(bw) “room and pillar” means a method of mining in which a mineral, including coal, is mined in rooms separated by pillars of undisturbed mineral, including coal, which provide roof support;

(bx) “section”, in relation to a coal mine, means a part of the mine defined by the manager as required by subsection 56(1);

(by) “self-contained breathing apparatus” means a breathing device with a source of breathable air that is completely isolated from the air in which the user is located;

(bz) “shaft” means an opening in a mine if shaft conveyances are operated and, except for the purposes of Part 10, includes a slope, an adit, an incline or decline, unless the context otherwise requires;

(ca) “shaft conveyance” means a device used to transport people, ore, coal, rock, or material in a shaft and includes a cage, skip or bucket, but does not include a raise climber;

(cb) “shaft station” means an area near a shaft from which ore, coal, rock, materials or people enter or exit the shaft conveyance;

(cd) “shift” means the period of time worked by a division of the persons employed at a mine who work at the mine during a set period of the day;

(ce) “skip” means an enclosed device used in a shaft to transport ore, coal, rock, or material;

(cf) “split” means a division or branch of the ventilation circuit in a mine;

(cg) “stope” means a working in a

non-coal mine from which ore is extracted, but does not include a working required for development of the mine;

(ch) "stopping" means a barrier that obstructs ventilation;

(ci) "supervisor" means a competent person in any level of management at a mine who

(i) is responsible for a workplace or part of a workplace at a mine, and

(ii) exercises authority over, controls or directs the work of an employee;

(cj) "survey" means a plan of the position of all mine workings based on the results of measurements made using appropriate instruments;

(ck) "temporary storage box" means a portable unit for the keeping of explosives that

(i) is approved for that purpose by Natural Resources Canada, or

(ii) is made of non-sparking material designed for the purpose, meets the requirements of clauses 378(1)(a),(b) and (c) and is certified by an engineer;

(cl) "train" means, unless the context otherwise requires, equipment that is used underground at a mine and consists of

(i) at least 1 mine car connected to at least 1 unit of mobile equipment,

(ii) 2 units of mobile equipment connected together with no mine cars, or

(iii) at least one mine car, powered by a hoist, operating on an incline of less than 22.5° from the horizontal;

(cm) "travelway" means a ramp,

incline, slope, level, ladder walkway, stairway, adit or similar pathway used primarily by persons to move from one area of a mine to another;

(cn) "ULC" means the Underwriters' Laboratories of Canada;

(co) "ventilation door" or "ventilation curtain" means a device for minimizing air leakage between airways in accordance with Section 213;

(cp) "ventilation engineer" means a person who

(i) carries out the duties of a ventilation engineer under these regulations, and

(ii) is designated by the employer in accordance with Section 203;

(cq) "ventilation system" includes both primary and auxiliary ventilation systems; and

(cr) "working face" means an area underground from which material being mined is cut, sheared, broken, drilled, blasted or otherwise loosened.

Part 2 - Notice, Plan, Report, and Filing Requirements

Records to be in writing

8 Unless otherwise specified, an employer must ensure that every document required to be made under these regulations is in writing, and dated and signed by the person who made it.

Maintenance and availability of records

9 (1) An employer must ensure that a copy of every document required by these regulations is

(a) readily available to the Committee or representative;

It is not intended that the business plan and feasibility study required under section 48 be required to be released to a committee or representative. (November 27, 2003)

(b) if reasonably practicable, kept in a safe place at the surface of the mine; and

(c) kept for at least 2 years after the date of the last entry, unless otherwise specifically exempted in these regulations.

(2) Despite clause (1)(c), an employer must ensure that every plan, specification, and procedure required by these regulations is kept for a period of at least 2 years after the plan, specification, or procedure is superseded or becomes obsolete, unless otherwise required.

Revisions filed and latest version used

10 (1) An employer must ensure that any work carried out is done in accordance with the latest relevant document.

(2) A revision made to a document required to be filed with the Director pursuant to these regulations must be signed by the person required to sign the document originally and filed with the Director as soon as reasonably practicable.

"Revised" means **any** change - including phone numbers or name changes - in a document that is required to be filed with the Director -. Employers may request a fee waiver under section 58(2) if they feel the OHS Division would not incur any substantial cost in assessing the revised plan. (July 25, 2005)

Required revision to document

11 (1) The Director may require an employer to make revisions to a document filed under these regulations if the Director considers that the revisions are necessary to

(a) add to or amend the information supplied so that it may be determined whether an existing or proposed activity is consistent with generally accepted engineering principles or is in compliance with the Act or these regulations;

(b) correct an existing or potential inconsistency with generally accepted engineering principles or other potential violations of the Act or these regulations; or

(c) to ensure health and safety.

No false or misleading entries

12 No person is permitted to make a false or misleading entry or fail to make a relevant entry, on a document that is required to be made under these regulations.

Content of inspection and examination records

13 (1) An employer must ensure that a record required by these regulations of an inspection or examination includes the following information:

(a) the company name and mine site location;

(b) the name of the person conducting the inspection or examination;

(c) the area or thing being inspected or examined;

(d) the non-duplicated identification number of the machine or equipment being inspected or examined;

(e) the date and start time of the inspection or examination;

(f) a statement made by the person conducting the inspection or examination describing the condition of the area or thing being inspected or examined;

(g) the observations of the person conducting the inspection or examination regarding the safety of the area or thing being inspected or examined;

(h) the name and signature of the person receiving the record if these regulations identify such a person;

(i) a statement made by the person conducting the inspection or examination indicating that any remedial actions recorded have been implemented and when such actions were taken;

(j) the signature of the person who conducted the inspection or examination; and any additional information ordered by the Director.

(2) An employer must establish, implement and maintain a process for recording the results of inspections and examinations.

(3) The process referred to in subsection (2) may be computerized or manual.

(4) An electronic signature is permitted on a record of inspection or examination if the electronic signature can only be entered into the computer by the person purported to have signed the record.

Manager countersignatures

14 (1) Despite any requirement under these regulations for countersignature or approval by a manager, if a manager is not designated at a mine in accordance with Section 62, the countersignature or approval is not required until the manager is designated or a person is designated as an alternate in accordance with subsection 62(1)(b).

(2) A manager must review and approve or countersign every document that was not reviewed and approved or countersigned under subsection (1).

(3) The countersignature of a person designated as an alternate to a manager in accordance with subsection 62(1)(b) is deemed to be the countersignature of a manager.

Countersignature in more than one capacity

15 If the same person signs or countersigns a document in more than one job category capacity for the purpose of complying with these regulations, the person must identify those capacities on the document.

Notice

16 (1) Notice required under these regulations must be given in writing, unless otherwise specified.

(2) If all parties who are required to receive notice agree in writing, a notice period required under these regulations may be decreased to a period agreed upon by the parties, or waived.

Record and review of test or calibration

17 For every test, including air quantity or quality tests, or calibration required under these regulations, the manager must designate a competent person to

- (a) record the results of the test or calibration; and
- (b) review the results, and ensure that adequate action is taken.

Records and documents on personal health of employee

18 (1) An employer must keep at the mine for as long as a mine worker is employed at the mine all records and other documents related to the personal health of the mine worker if the records or documents have been created pursuant to these regulations.

(2) Upon termination of employment or closure of the mine, the records and documents referred to in subsection (1) must be mailed to the former employee at their last known address unless the Director otherwise orders.

Plans

19 (1) Every plan required under these regulations must

- (a) be drawn to a scale that is sufficient to show the required details; and
- (b) include the name and address of the employer and the physical location of the mine.

(2) An employer must ensure that if any plan is based upon or uses survey information, the information is supplied by a surveyor who is a designated competent person.

Review of records by Director or financial expert

20 (1) A review of a document that is required under these regulations by or for the Director or by a financial expert does not constitute an approval of it by the Director or financial expert or an assurance that if work proceeded in the manner described in it that this would be sufficient to comply with the Act, these regulations, or generally accepted engineering principles.

(2) If the Director or a financial expert recognizes that a document that is required to be filed with the Director or assessed by a financial expert under these regulations would result in a contravention of the Act, these regulations, or generally accepted engineering principles if work proceeded in the manner described in the document, the Director or financial expert may advise the employer and any other appropriate person at the workplace of the potential contravention.

Clause (b) provides the Director with discretion to allow second opinions on technical advice provided by the employer. (December 9, 2003)

(3) Whether or not advice is received under subsection (2) does not affect a person's responsibilities or duties under the Act and these regulations.

21 If a document is filed with the Director under these regulations, the Director may

(a) require more information; or

(b) retain, at the employer's expense, an external expert to review the document.

Notice of document to committee and representative

22 (1) Unless the committee or the representative, if any, is required to receive a copy of a document that must be filed with the Director, an employer must notify the committee or representative of the filing and include a description of what is filed within the same notice period, if any, required for the Director.

(2) A requirement regarding the committee or representative must be complied with as soon as reasonably practicable after the committee is formed or a representative selected.

Consultation with committee or representative on written procedures, programs or instructions

23 An employer developing or reviewing a written procedure or program, or written instructions, for the purpose of these regulations must do so in consultation with the committee or representative, if any.

Committee to review procedures and programs

24 (1) An employer must ensure that the committee or representative, if any, at a mine reviews and makes recommendations on, at least annually,

(a) the employer's job training program; and

(b) any procedures or programs required to be developed by these regulations.

The duty on the employer is to present on an annual basis the documents listed here to the committee or representative for review and to allow the committee or representative reasonable time to complete the review. If the committee or representative declines to review them, the employer is not liable. (November 27, 2003)

The detail to which an annual review is done is up to the committee or representative, so long as it is reasonable. Disputes about the "reasonableness" of the level of detail should be referred to the Department of Environment and Labour. (November 27, 2003)

There is no requirement for an employer to provide a committee or representative with independent advice to aid in a review. (November 27, 2003)

(2) The review required subsection (1) must consider

(a) changes in technology;

(b) mining conditions; and

(c) work practices and procedures in the mine.

Written procedures, programs, plans or certifications

25 An employer must ensure that a written procedure, program, plan or certification that is developed for the purpose of the Act or these regulations, is

(a) adequate and implemented; and

(b) countersigned by the manager,

and that each person who is required to perform a function under the procedure, program, plan, or certification is trained in respect of it generally, and in particular in the requirements relating to that person.

Activities to be carried out in accordance with documents

26 An employer must ensure that any activities or procedures specified in documents required under these regulations are carried out or implemented as specified in the documents.

Report of occurrence

27 (1) In addition to the notice of an accident at the workplace required by Section 63 of the Act, an employer must notify the Director within 24 hours and the committee or representative, if any, as soon as reasonably practicable of

(a) an outbreak of fire, of any size, if it is unplanned or uncontrolled, or endangers a person or property;

(b) at a coal mine, any occurrence of an open flame that is not permitted by these regulations, including a flamed charge;

Monitoring and oversight of the ventilation system, and not contaminant levels, is required by clause (g). (December 9, 2003)

(c) a sudden release or in-rush of water, mud, slurry, or debris;

(d) a gas outburst;

(e) a premature or unexpected explosion of explosives, gas or dust, or a misfire;

(f) any unplanned fall of the rib or roof, or any rockburst, that

(i) impairs ventilation,

(ii) impedes the passage of persons,

(iii) causes injury to a person,

(iv) causes a person to withdraw from the area, or

(v) disrupts work for more than one

hour;

(g) failure of a main fan or booster fan or any changes that result in air flow changing by more than 15% in any area from the airflow noted on the ventilation plan required in Section 53;

(h) flammable gas concentration equal to or greater than 0.5% by volume in the air being tested in an area designated under Section 188 a non-gassy zone; or

(i) flammable gas concentration equal to or greater than 2% by volume in the air being tested in an area designated under Section 188 as a gassy zone.

(2) An employer must complete and maintain on the surface at a mine, a record of any of the occurrences specified in clause (1) and the following:

(a) a flammable gas concentration equal to or greater than the concentration specified in clause 234(6)(a), subsections 236(2), 237(2), and 238(2), clause 239(2)(b) and Sections 242, 243 and 253.

(b) an evacuation of persons as a result of high gas concentration;

(c) a coal dust concentration from a travelway outside the limits established in Section 184;

(d) an unplanned or unexpected rock fall that exceeds 3 t;

(e) a work refusal related to health or safety;

(f) any unplanned contact with an energized electrical line;

(g) treatment of a person in a hospital for injury received at the mine;

(h) a failure of a hoist safety device during use or test;

(i) 1 occurrence of a coal dust concentration greater than twice the occupational exposure limit, or 2 occurrences within any 30-day period of a coal dust concentration greater than the occupational limit, as determined by the sampling and analysis instructions required by clause 182(1)(e);

(j) an unplanned roof fall in an active working that impairs ventilation or impedes passage of persons;

(k) asphyxiation of a person;

(l) mobile equipment going out of control;

(m) an accident or incident involving a mine hoisting plant;

(n) any cracking or subsidence of a bulkhead, dam, permanent stopping or explosion-proof barrier;

(o) an accident or incident involving an electrical installation, that may have or did result in personal injury or property loss;

(p) a failure of equipment that is not intrinsically safe or not flameproof;

(q) the introduction of a type of electrical installation that does not comply with a CSA Standard listed in clause 189(1)(a) or (b); or

(r) a discrepancy in the inventory of explosives required by Section 383.

(3) An employer must ensure that a record made pursuant to subsection (2) is kept as follows:

(a) at a coal mine, a record of an occurrence described in

(i) clause (1)(a), (b), (c), (d) or (e) or (2)(b), (e), (g), (h) (i), (m), or (o) must be kept while the mine is in operation, and

(ii) clause (1)(f) must be kept for the period during which the affected area of the underground is an active working; and

(b) at a non-coal mine, a record of an

occurrence described in clause (1)(c) or (2)(o) must be kept while the mine is in operation.

(4) An employer must give notice of a record completed under subsection (2) to the committee or representative, if any, as soon as reasonably practicable and provide a copy of the record to the committee or representative, if any, on request.

Investigation of reported occurrence

28 (1) If there is an occurrence of a type that requires a record to be made under subsection 27(2), an employer must, without delay,

(a) take measures reasonable in the circumstances to eliminate the cause and to prevent a reoccurrence;

(b) post notice of the occurrence at a conspicuous location at the workplace; and

(c) ensure that an immediate investigation of the occurrence is carried out.

(2) On completion of the investigation referred to in subsection (1), the employer must, without delay, ensure that a report of the investigation is prepared.

(3) The report required by subsection (2) must

(a) wherever possible, identify the cause of the occurrence;

(b) identify unsafe conditions, acts, or procedures that contributed in any manner to the occurrence;

(c) include measures to be taken by the employer to prevent similar occurrences and a schedule for implementation of the measures; and

(d) include the comments of the committee or representative, if any, on the

(i) investigation into the occurrence

required by clause (1)(c), and

(ii) measures taken arising from that investigation.

Activities that require filing of notices, plans and reports

29 (1) If an employer proposes to proceed with any of the activities in Sections 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, and 47 they must

(a) file the documents required in those Sections, and the documents required in Sections 50, 51, 52, 53 and 54, at least 90 days in advance of proceeding with any of the activities;

(b) file the report required by Section 193 whenever the plan of the electrical installations required in Section 51 is filed;

(c) at a coal mine, file the document required in Section 54 whenever the ventilation plan required in Section 53 is filed; and

(d) give written notice to the Director at least 30 days in advance of proceeding with any of the activities, and the notice must include the anticipated start date for the activity.

(2) An employer at a coal mine must file with the Director the ground control procedure required by Section 52 every 6 months while the mine is in operation.

Maintenance of reports

30 (1) An employer must ensure that the reports referred to in Sections 37 to 47 are kept while the mine is in operation.

(2) An employer must ensure that the business plan and feasibility study referred to in subsection 48(1) are kept while the mine is in operation.

Contact and location to be included in documents

31 Any document filed with the Director must include

(a) the name, address and telephone number of the employer; and

(b) the geographic location of the site to which the filed document relates.

Documents to be certified by an engineer

32 An employer must ensure that a document required by Section 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 50 or 51 is certified as adequate by an engineer.

33 An employer must ensure the document required by Section 52 is certified as adequate by a mining engineer who is competent in the types of ground control the employer proposes to use.

This Section is to ensure a minimum level of training for the for individual who is required to certify the documents. (December 9, 2003)

34 An employer must ensure the document required by Section 53 is certified as adequate by a ventilation engineer.

A "ventilation engineer" could be educated in any field of engineering providing that the engineer is competent to perform the duties and make the assessments and certifications required by these regulations. (November 13, 2003)

Code of practice for re-entry into a mine

35 (1) An employer who proposes to re-enter a mine but does not intend to significantly disturb the ground of the mine must file a code of practice with Director for approval at least 30 days prior to re-entry of the mine that includes

(a) the name and geographical location of the proposed entry;

(b) a description of the work to be done and its duration;

(c) information on safety and control measures that will be used when entering the mine, including a description of

(i) how the mine will be ventilated,

(ii) how ground control will be managed,

(iii) how electrical and mechanical safety will be ensured,

(iv) how water will be handled,

(v) mine rescue resources and communication,

(vi) air quality and air quantity testing in the ventilation part, and

(vii) the type of personnel protective equipment that will be used;

(d) a list of equipment to be used;

(e) a description of the health and safety responsibilities of workplace parties;

(f) a list of individuals who will be entering the mine;

(g) information on how the mine will be sealed; and

and any other information that is relevant to the health and safety of those re-entering the mine.

(2) For greater certainty, an employer who proposes to re-enter a mine and does not intend to significantly disturb the ground of the mine is not required to file any documents required by these regulations except the code of practice required by subsection (1).

Report on proposed initial development or construction of a mine, or re-entry into a mine

36 An employer who proposes to proceed with the development or construction of a mine, or re-entry into a mine that ceased development or production for 60 consecutive days or more, must file a report with the Director that includes descriptions and, if appropriate, plans of

(a) the proposed mine and mining methods;

(b) the area from which the material will be extracted;

(c) the proposed means by which the work will be carried out and the schedules and equipment proposed for use in each phase of development;

(d) the location of bodies of water and watercourses, that might impact on the operation including

   (i) a determination if any existing or proposed workings are below a body of water or watercourse, and

   (ii) if any existing or proposed workings are below a body of water or watercourse, a description of the geological nature of the material between the body of water or watercourse and the existing or proposed workings;

(e) the known location of faults or other structural geological disturbances within or adjacent to the mine site;

(f) the location for storage of ore, tailings and waste rock;

(g) a procedure for the anticipated permanent shutdown of a mine that includes

   (i) an intended shutdown date,

   (ii) plans, specifications, and instructions for the abandonment of the mine,

   (iii) details of portal closure procedures and methods, and

   (iv) details of site security.

Report on proposed significant change or experimental activity

37 An employer who proposes to introduce a significant change in procedures, technique or equipment, or introduce an experimental operation that may affect the health or safety of a person, must file a report with the Director that includes details of the activity and its impact on ventilation, ground control and equipment underground at the mine.

Report on shutdown, closure, or abandonment of a mine

38 An employer who proposes to shut down, close or abandon a mine must file a report with the Director that includes

(a) details of the shutdown, closure, or abandonment and its impact on ventilation, ground control and equipment underground at the mine; and

(b) an updated mine survey plan in accordance with Section 50.

Report on shaft sinking or deepening

39 An employer who proposes to sink or deepen a shaft must file a report with the Director that includes

(a) details on the ventilation of the shaft;

(b) the manner in which water in the shaft will be handled or controlled;

(c) an updated ventilation plan in accordance with subsection 53(2);

(d) despite subsection 129(1) of the *Occupational Safety General Regulations* made under the Act, a confined space procedure that includes all items noted in Sections 130 to 137 of those regulations; and

(e) details on the procedure and equipment that will be used in the shaft sinking or deepening.

Report on the installation or major alteration of mine hoisting plant

40 An employer who proposes to install or make a major alteration to a mine hoisting plant must file a report with the Director that includes specifications and drawings of the installation or alteration designed by an engineer.

The requirement to file a report with the Director before installation applies **only** to the installation of a **complete or essentially complete** mine hoisting plant as defined in the regulations. Installation or replacement of parts of the mine hoisting plant does not trigger the requirement to file. A "major alteration" is defined as a:

- change in the method of hoisting ,
- change of the rated horsepower of the mine hoisting plant by more than 20% from what is presently installed ,
- change in the lifting limit by more than 20% from what the mine hoisting plant can presently safely and legally lift,
- relocation,
- change of service from what is the mine hoisting plant is currently designed for (i.e. skip to personnel hoist),
- change of operating method from what the mine hoisting plant is currently designed for (i.e. manual control to computer control),
- replacement of more than 20% of the mine hoisting plant with parts not manufactured by the original equipment manufacture; this does not cover regular preventive maintenance
- change in the maximum depth by any amount from what the mine hoisting plant is designed for.

An alteration is not major if a part is replaced by a similar, but different, part that performs the same function to the same specifications (September 14, 2004)

Report on installation of fuel systems

41 An employer who proposes to construct a fuel transfer system, a fuelling station, or a storage area for flammable material must file a report with the Director that, if applicable, includes

(a) the procedure required by subsection 172(5) for the transfer of diesel fuel from a surface storage tank to an underground storage tank;

(b) the written specifications of an engineer required by subclause 173(a)(ii) for a diesel fuel pipeline serving the underground;

(c) a description of monitoring procedures to identify airborne substances that may be generated;

(d) equipment and material lists and specifications; and

(e) detailed specifications of the fuel to be transferred.

Report on construction of barrier, dam, bulkhead, stopping, or sealing off abandoned areas

42 (1) An employer who proposes to construct an explosion-proof barrier or dam, a bulkhead, or a permanent stopping, or seal off abandoned areas of a coal mine, must file with the Director a report that includes

The term "bulkhead" does not include ventilation curtains (ventilation bulkheads) where the max pressure exerted on such structure is less than 12 inches of water pressure. (November 13, 2003)

(a) a ventilation plan that reflects the changes in ventilation after the barrier, dam, bulkhead, stopping or seal is constructed;

(b) details of drainage;

(c) details of design;

(d) the location of the barrier, dam, bulkhead or stopping;

(e) if it is a dam, details on whether the dam is designed to hold back more than 1 m high of water or to hold more than 50 000 L of water;

(f) whether the barrier, dam, bulkhead, stopping, or seal is designed to contain an explosion; and

(g) the procedures required by subsection 249(4).

(2) Subsection (1) does not apply to the construction of a dam that is

(a) less than 1 m in height and is designed to hold back less than 50 000 L of water;

(b) located in a travelway or underground opening; and

(c) used solely for diverting the drainage on a mining level or storing water for mining purposes.

Report on construction of a battery charging station

43 An employer who proposes to construct a battery charging station must file a report with the Director that includes

(a) details on air-flow directions and quantities in respect of the battery charging station;

(b) detailed specifications for the charging equipment and batteries;

(c) a plan of the battery charging station showing the general arrangement and location of the charging equipment and all other electrical installations in the battery charging station; and

(d) a procedure for fire-fighting in the event of a fire in the battery charging station.

Report on transporting persons for the first time

44 An employer who proposes to transport persons underground by a shaft conveyance for the first time must file a report with the Director that includes

(a) the date of the intended first transport;

(b) the maximum number of persons that are allowed to be transported in the shaft conveyance at any one time; and

(c) the procedures for the commissioning of the shaft conveyance required by Section 327.

Report on designation of an area as falling within a non-gassy zone

45 An employer who proposes to designate an area of

a coal mine as a non-gassy zone under Section 188 must file a report with the Director that includes

(a) the report of a ventilation engineer as required by subsection 188(4); and

(b) a plan showing the location of the non-gassy zone.

Report on use of equipment that is not intrinsically safe or not flameproof

46 (1) An employer who proposes to install equipment at a coal mine that is not intrinsically safe or not flameproof, must file with the Director a report that includes

(a) the approval required in subclause 192(1)(b)(i); and

(b) a plan showing the exact location of the equipment.

(2) Subsection (1) does not apply to the replacement of an existing piece of equipment that is not intrinsically safe or not flameproof if the replacement equipment is of the same model, type, and rating and from the same manufacturer as the original equipment.

Report on work less than 60 m from a primary or auxiliary access

47 (1) An employer who proposes to mine less than 60 m from a primary or auxiliary access must file a report with the Director that includes

(a) the rationale for mining less than 60 m from a primary or auxiliary access;

(b) the method of drivage;

(c) the method of ground control;

(d) a geotechnical assessment by an engineer of the effects of the proposed work on the primary or auxiliary access, taking into consideration the

(i) geology,

(ii) method of mining,

(iii) depth of workings,

(iv) ground stresses,

(v) type of ground control, and

(vi) length of time the access is

intended to used by persons entering or leaving the mine.

(2) The geotechnical assessment described in clause (1)(d) must include the engineer's opinion on the adequate functioning of the access.

Coal mine business plan and feasibility study

48 (1) If ordered by the Director, an employer who proposes to develop or construct a coal mine must have the employer's business plan and feasibility study assessed by a financial expert at the employer's expense.

The intent here is that the Director may order the business plan and feasibility study to be submitted to an independent financial expert. The intent is not to require the employer to assess the plans internally and then submit them to the Director's financial expert for another review. (November 27, 2003)

(2) An employer must file the business plan and feasibility study referred to in subsection (1) in a manner ordered by the Director.

(3) An assessment ordered by the Director under subsection (1) must include following information:

(a) an analysis of coal markets and production schedules;

(b) estimated operating supplies and anticipated costs of the supplies;

(c) financial details, including audited financial statements;

(d) assets and cash reserves;

(e) sensitivity analyses, including the anticipated effects of changes in market conditions, supplies, price, timing, production costs, product quality, work force, wage rates, taxes, equipment and maintenance costs, or any other relevant factor,

and any additional factors that, in the opinion of the financial expert, are relevant to the financial viability of the mine.

Update required for obsolete or outdated portions of

plans or procedures

49 Despite any other requirement contained in these regulations, any obsolete or outdated portions of the mine survey plan, electrical plan, ground control procedure and ventilation plan must be updated monthly and updates kept at the mine.

Mine survey plan

50 An employer must ensure that a surveyor prepares a plan of the mine that includes

(a) the boundaries of the property on which the mine is located;

(b) the location of

(i) all lakes, streams and other topographical features that might impact on the mine,

(ii) roads and railways,

(iii) electric power transmission lines,

(iv) main pipe lines,

(v) buildings,

(vi) shaft openings,

(vii) surface workings,

(viii) dumps and waste disposal sites,

(ix) magazines in or adjacent to the mine site,

(x) entries into and exits from the mine, and any existing workings,

(xi) known boundaries of mine deposits and adjacent mine boundaries within 500 m of the proposed workings,

(xii) drill holes that might intersect underground workings on the mine site,

This includes drill holes at all levels of the mine, not just ones on surface. (November 27, 2003)

(xiii) surface facilities, including

The magazines noted here are the same ones noted in (ix) magazines;

(c) separate plans of each underground level of the mine showing all major features, including all

(i) underground workings,

(ii) working faces,

(iii) shafts,

(iv) tunnels,

(v) dams, bulkheads, stoppings and barriers,

(vi) electrical substations,

(vii) magazines,

(viii) fuel storage areas,

(ix) shop areas,

(x) garages,

(xi) refuge stations,

(xii) lunch rooms,

(xiii) room and pillar workings,

(xiv) longwall and shortwall workings,

(xv) airways,

(xvi) escapeways,

(xvii) stopes,

(xviii) other travelways, and

(xix) abandoned areas of the mine;

(d) vertical plans showing all

(i) shafts,

(ii) winzes,

and need not be recorded twice. (November 27, 2003)

(iii) tunnels,

(iv) drifts,

(v) slopes,

(vi) raises,

and additional mine workings in relation to the surface and the top of the bedrock;

(e) the location of any body of water dammed in the mine;

(f) the elevation of the tops and bottoms of shafts;

(g) the position, direction and extent of every known fault and the displacement of the faults;

(h) the direction and dip of the material being mined;

(i) adjacent mines within 500 m of any area of the mine;

(j) existing mine workings above or below the mine; and

(k) the location of telephone or other communication or signal installations.

Electrical installations plan

51 An employer must ensure that a plan of the electrical installations at a mine is prepared that

(a) meets the requirements of clause 3.2.1 of CSA standard CAN/CSA-M421-00, "Use of Electricity in Mines"; and

(b) in a coal mine, includes

(i) the location of any areas designated as a non-gassy zones, and

(ii) the location of any equipment that is not intrinsically safe or not flameproof.

Ground control procedure

52 (1) An employer must ensure that a ground control procedure is in place for the workings of the mine to prevent the unplanned fall of rock.

(2) The ground control procedure required in subsection (1) must include details of

(a) existing geological conditions, including the thickness of any relevant seams;

(b) the type and thickness of strata in the roof and in the floor for a depth of 3 m above and below the strata being mined;

(c) the mining system to be used;

(d) any hazards related to ground control and an outline of the manner in which these hazards will be handled;

(e) the specifications of a vertical cross-section profile of mine strata;

(f) the planned width of openings and size of pillars, if appropriate;

(g) the method of permanent and temporary ground support, including pillars, mechanical devices, or any other methods to be used, including the type, sequence and spacing of permanent and temporary ground support materials;

(h) a plan showing the location and spacing of pillars, mechanical devices, or any other methods of support;

(i) the written details of the work to be completed to assess ground conditions;

(j) the written details of the work to be completed to install any ground control devices;

(k) when and if instruments or devices will be installed to monitor ground conditions, a description of how measurements will be taken, and a description of how results will be recorded;

(l) the work procedures used to construct, inspect, maintain, and regularly monitor the instruments and devices used to monitor the ground control system;

(m) a system to ensure that a record is made on a plan included as part of the ground control procedure of any unplanned fall of rock or any rockburst that

  (i) impairs ventilation,

  (ii) impedes the passage of persons,

  (iii) causes injury to a person,

  (iv) causes a person to withdraw from an area, or

  (v) disrupts activities for more than one hour;

(n) the training that will be provided to persons using or performing any function under the ground control procedure;

(o) how the effectiveness of the ground control procedure will be evaluated; and

(p) an adequate testing protocol for the ground supports.

(3) If, as a result of an assessment of ground conditions and in accordance with generally accepted engineering principles, it is considered necessary, the monitoring of the instruments and devices used to monitor the ground control system referred to in clause (2)(l) must be carried out in accordance with the

(a) manufacturer's specifications if they exist; or

(b) the specifications of an engineer.

(4) An employer must maintain a written record of the results obtained from an instrument or device used to monitor the ground control system and must keep the record for a period

of at least 2 years after

(a) the underground area of the mine that is covered by the record becomes abandoned; or

(b) after the instrument or device is no longer used.

Ventilation plan

53 (1) An employer must ensure that plans are made of the ventilation system.

The "ventilation plan" for a specific area may be spread over several pieces of paper if that is appropriate to ensure clarity. (November 27, 2003)

(2) The plans of the ventilation system required by subsection (1) must show

(a) the location and detailed specifications of all fans or air-moving devices;

(b) the location and detailed specifications of all surface openings;

(c) the location for the measurement of air in the mine to ensure the proper ventilation at all times;

(d) the direction, velocity, and volume of the main air currents, and of the air at each mine opening;

(e) the location of all ventilation devices, including main fans, auxiliary fans, booster fans, ventilation doors, airways and crossings, air ducts, brattice, bulkheads, flammable gas drainage pipes and holes, explosion-proof barriers, stoppings, seals, overcasts, undercasts, regulators, doors, and connections with adjacent mines;

(f) the location of all underground workings and splits, the volume of air entering and leaving each working section, and the volume of return air at each cross-cut in a room and pillar section;

(g) dimensions of all travelways, tunnels, shafts, vents, or any other device or airway through which ventilating air is moved;

(h) dimensions of all items listed in clause 50(b);	
(i) separate means of heating the mine ventilating air, if applicable;	
(j) compressed air lines;	
(k) the location of all fire-extinguishing equipment, fire-suppression systems, and fire hydrants;	
(l) location of all non-mobile monitoring and remote sensing equipment;	
(m) transportation systems for (i) persons, (ii) material being mined, and (iii) other materials;	
(n) the location of all first aid stations, first aid supplies and refuge stations;	
(o) the location of all drill holes that might intersect underground workings on the mine site;	This item is covered in sub-clause 50(b)(xii) and need not be repeated here. (November 27, 2003)
(p) the location of any area designated as a non-gassy zone under Section 188, and the location and type of any non-permissible equipment in the non-gassy zone;	
(q) the location of obstructions, such as ground control arches, that would impede air flow; and	A ground control arch must first obstruct ventilation before it must be recorded on the ventilation plan. (November 27, 2003) It is not nece3ssary to record each arch separately, so long as the plan has enough information to tell where each arch is located. (November 27, 2003)
(r) any methane drainage system.	This is the same item as the "flammable gas drainage pipes and holes" noted in (e) above and need not be recorded a second time. flammable gas drainage pipes and holes

Requirement for gas output per tonne of coal document

54 An employer at a coal mine must prepare a document estimating the gas output per tonne of coal.

The intent here is to measure the gas released by each tonne of coal mined. (November 27, 2003)

Mechanical equipment installation plan

55 An employer must ensure a that plan is prepared showing the location of non-mobile mechanical equipment installations.

Plans of sections and meeting stations in a coal mine

56 (1) The manager of a coal mine must define and an employer at a coal mine must ensure that a manager defines in writing on a plan the limits of each section in a coal mine for which a supervisor is responsible so that

(a) every working face, other than an area where work is being carried out for the purpose of repairing or enlarging a travelway, is included within a section; and

(b) a section is of a size that permits a pre-shift inspection to be completed in 2 hours or less.

(2) An employer must ensure that the plan required by subsection (1) is posted in a conspicuous place in all meeting stations underground.

(3) The manager of a coal mine must designate a meeting station that must be located at the entrance to each section, and must

(a) mark the meeting stations clearly on the plan required by subsection (1); and

(b) ensure that a notice is posted at each meeting station identifying it as a meeting station.

File plans once a year

57 An employer must file with the Director at least once in every 12 months after an activity specified

under Section 36 has commenced, until the mine is abandoned, the documents described in Sections 50, 51, 52, and 53.

Filing fees and refunds

58 (1) An employer must pay to the Occupational Health and Safety Division

(a) at the time a document, or any revision thereof, is filed with the Director, the applicable fee set out in Schedule A; and

(b) within 30 days of receipt of an order of the Director requiring payment, an amount equal to the difference between

(i) the actual cost incurred by the Director for the purposes of reviewing or assessing the document, and

(ii) the amount paid under clause (a).

(2) If an employer is required to file a document required by these regulations to be filed, the employer may apply in writing to have the filing fee required by clause (1)(a) waived or reduced.

(3) If the Director determines there is no substantial cost associated with the filing of a document required by these regulations, the Director may waive or reduce the associated filing fee.

(4) An employer must ensure that a fee paid under subsection (1) is accompanied by the following information:

(a) the number of the Section of these regulations requiring the document to which the fee relates; and

(b) the amount of the required fee for the document filed, as set out in Schedule "A".

(5) If the difference calculated under clause (1)(b) is less than 10% of the amount of the filing fee paid under clause (1)(a) in respect of the record, report, plan or document then

Filing fees allow for resource availability for the review of various reports, documents, and plans to be filed with the Director. Subsection (2) allows for the employer to apply to have any filing fee waived or reduced. (December 9, 2003) no amount may be charged under clause (1)(b) .

(6) If the cost of reviewing or assessing a particular document filed under these regulations is less than the filing fee paid under clause (1)(a) in respect of the document, the difference must be refunded if it is more than 10 % of the filing fee.

(7) If the Director determines, based on the documents filed, that a review is necessary to ascertain the adequacy of the information contained in the documents, the Director must review the information in a timely manner.

(8) The Director must notify the employer when the review is complete and the notice must state the cost of the review.

Posting notice of filing

59 An employer must post and maintain the posting of

(a) a notice in a conspicuous place of the filing of documents with the Director under these regulations, stating where the documents can be examined; and

(b) a copy of the mine plan relating to the area of the mine affected by the plan in the area of the mine affected by a plan and maintain the posting.

The intent is that there be open access and transparency (December 9, 2003)

Penalty for non-payment of fee

60 (1) An employer at a mine who fails to pay a fee required by clause 58(1)(a) may be subject to an order issued by the Director, in addition to any order for payment of the fee outstanding under subsection 58(1), requiring payment of an administrative penalty in an amount equal to the fee outstanding under subsection 58(1), and the employer is required to pay both the fee and the penalty.

(2) If an employer has made an application pursuant to clause 58(2), the fee outstanding under clause 58(1) is not due unless and until

the Director orders that it be paid.

(3) An order of the Director under subsection (2) may be appealed under Section 69 of the Act.

Part 3 - General Safety Requirements and Work Procedures

Designation in writing

61 Unless otherwise provided, if these regulations require an employer to designate a person, the designation must be in writing.

Designation of manager

62 (1) Before work involving the disturbance of ground commences at a mine, an employer must

(a) designate 1 competent person as manager, and at a coal mine the competent person must meet the qualifications set out in Section 460; and

(b) designate 1 competent person as an alternate person to be responsible for performing the duties of the manager if the manager is unable to carry out the duties of manager, and at a coal mine the competent person must meet the qualifications set out in Section 460.

The employer may designate more than one person as an alternate manager provided that at all times when an alternate is performing the duties of the manager, it is absolutely clear which alternate is performing those duties. (November 29, 2003)

It is not permissible to split the manager's duties amongst several alternates. (November 29, 2003)

If the manager is off-site but is able to be contacted immediately, there is no need for an alternate to perform the manager's duties. (November 29, 2003)

(2) If the manager vacates the position or otherwise ceases to perform the duties of manager for a period of 90 consecutive days, the employer must designate a new manager.

Duties of the manager

63 The manager or the manager's alternate must

(a) as far as is reasonably practicable, be in attendance at the mine while it is working; and

(b) take every precaution that is reasonable in the circumstances to ensure that the requirements of the Act and any applicable regulations are complied with.

Designation of underground manager at a coal mine

64 An employer at a coal mine must designate a competent person who meets the qualifications set out in Section 461 as the coal mine underground manager who is responsible for the overall supervision of operations underground.

Designation and numbers of supervisors

65 An employer must designate competent persons as supervisors, and at a coal mine the competent persons must meet the qualifications set out in Section 461, in numbers necessary to

(a) monitor the workplace sufficiently to ensure compliance with the Act and these regulations;

(b) ensure timely communication of the information that is necessary to health and safety among mine workers working at the mine;

(c) ensure that gas tests and inspection of the workplace can be performed as required under these regulations;

(d) ensure that a person who follows plans, or has access to information from plans, is a competent person;

(e) provide or obtain technical assistance to any person who needs it to ensure health and safety in accordance with the Act and these regulations; and

(f) inspect and supervise the mine as in accordance with these regulations.

Designation of mine workers

66 (1) Before work at a mine commences, an employer must designate all persons who will work underground as mine workers.

(2) Prior to being designated as a mine worker, an employer must ensure the persons in subsection (1) have

(a) completed the training for mine workers required by Section 446 or passed all examinations normally required as part of the courses required for a mine worker in the employee's job training program as required under Part 12;

(b) in a coal mine, met the qualifications set out in Section 459.

Designation of hoist operator

67 If an employer uses a hoist underground, an employer must designate at least 1 person who meets the qualifications set out in Section 452 as a hoist operator.

It does not matter if the hoist engine is on surface or not. (November 29, 2003)

Designation of mine rescue workers and team captain

68 (1) An employer must designate competent persons who meet the qualifications of Section 455 as mine rescue workers in numbers that meet the requirements of Section 141.

(2) An employer must designate a competent person who meets the qualifications of Section 457 as a mine rescue team captain for each mine rescue team required by Section 141.

Designation of mine rescue trainer

69 An employer must designate a competent person who meets the qualifications of Section 458 as the mine rescue trainer to conduct the mine rescue training for the mine rescue team required under these regulations.

Designation of mine examiner at a coal mine

70 An employer at a coal mine must designate a least

1 competent person who meets the qualifications of Section 464 as a mine examiner.

Designation of surveyor in a coal mine

71 An employer at a coal mine must designate a least 1 competent person who meets the qualifications of Section 465 as a surveyor.

Designation of electricians and mechanics at a coal mine

72 (1) An employer at a coal mine must designate

(a) a least 1 competent person who meets the requirements set out in Section 467 as a coal mine electrician; and

(b) a least 1 competent person who meets the requirements set out in Section 467 as chief coal mine electrician.

(2) An employer at a coal mine must designate

(a) a least 1 competent person who meets the requirements set out in Section 468 as a coal mine mechanic; and

(b) a least 1 competent person who meets the requirements set out in Section 468 as chief coal mine mechanic.

Restriction on persons permitted underground

73 An employer must ensure that no person, unless permitted under subsection 445(2), (4), or (5), goes underground at a mine unless they have been designated as a mine worker.

More than one designation held by a person

74 A person may hold more than one designation.

Employer to verify systems

75 (1) Before beginning mining activity, an employer must verify and document the performance of all systems, procedures, equipment, and installations at the mine that may impact health and safety, to ensure that they meet the plans and specifications and operate in conformity with the design intent.

(2) An employer who proposes to undertake an activity described in Section 37 to 42 or 44 must, prior to its use or implementation, verify and document the performance of the system, procedure, equipment, or installation to ensure that it meets the plans and specifications and operates in conformity with the design intent.

Monitors and meters

76 An employer must ensure that all monitors and meters are constructed, operated, inspected, maintained, calibrated, and dismantled in accordance with the manufacturer's specifications, or if there are no manufacturer's specifications, written specifications certified by an engineer.

Controlled access to and from mine

77 (1) An employer must ensure that

(a) no person enters a mine unless authorized by the manager or by law;

This clause requires the employer to take reasonable precautions to prevent unauthorized access to the mine. The clause does not require a fence or other barrier or 24-hour security if the objection of preventing unauthorized access can be accomplished in some other way. (October 29, 2003)

(b) a notice indicating restricted access to the mine is posted at all entrances to the mine property, including all entrances to the underground; and

(c) a competent person who is qualified with respect to underground operations is on duty on the surface whenever a person is underground.

A person who is familiar with the mine Emergency Preparedness Plan, their role in it and is able to activate the plan meets the requirements of "qualified". (November 29, 2003)

If the employer wishes to include additional requirements on the individual on duty at the surface whenever a person is underground, they are permitted to do so. (December 9, 2003)

(2) Every person must enter and exit the underground by way of a designated entrance or exit, except in the case of an emergency.

The competent person may perform other duties so long as they do not interfere with the ability to perform their role under and activate the mine Emergency Preparedness Plan. (November 29, 2003)

Recording and identification of all persons underground

78 (1) An employer must develop, implement, and maintain a check-in and check-out system that accurately identifies by name and number all persons who are underground at the mine.

(2) The system referred to in subsection (1) must consist of

(a) a written record, check-board or lamp-check, or other adequate method, kept on the surface in a place that will not be affected in the event of an underground explosion; and

(b) a fireproof number tag, that corresponds to the record of identification used under clause (a) and must be carried by each person.

Washing and changing facilities (wash house or mine dry)

79 (1) An employer must a provide separate facility for male mine workers and female mine workers to wash, shower, change and dry their clothing, and each facility must include a separate storage facility for street clothes and working clothes.

"Wash" refers to the mine workers washing themselves, not their clothes. (November 29, 2003)

If there are no mine workers of one gender, there is no requirement to provide facilities for that gender. (November 29, 2003)

(2) An employer must provide hooks for hanging clothes in the facilities referred to in subsection (1).

(3) An employer must ensure that a facility required by subsection (1) is

(a) not located

(i) in a headframe, boiler room, engine room, bunkhouse, or lunchroom unless the facility is located within a physically separate room in the headframe, boiler room, engine room, bunkhouse, or

(ii) nearer than 15 m to a shafthead building or portal house unless the facility is constructed of non-combustible material;

(b) adequately heated, lit, and ventilated;

(c) kept clean and provided with

(i) a means of drying hands, and

(ii) an adequate supply of soap or other cleansing materials for washing persons;

(d) provided with an adequate supply of hot and cold water; and

(e) provide with a minimum of 1 shower and no less than 1 shower for every 10 persons leaving the mine at the same time.

Self contained breathing apparatus - requirement to be clean-shaven

80 A person working at a mine who may be required to use self-contained breathing apparatus must be clean-shaven to ensure to ensure an effective facial seal with the apparatus.

This provision applies only to persons who are "working" and who "may be required to use" SCBA. Visitors, owners, and investors would generally be exempt, unless they are working and expected to use SCBA. Mine inspectors are captured by this Section as they are "working", but if the use of SCBA is not anticipated, then the requirement does not apply. (December 9, 2003)

"Clean-shaven" means one has shaved within the last 24 hours. (December 9, 2003)

If a person uses a respirator that is not intended to be tight-fitting then they do not have to be clean-shaven. (December 12, 2003)

Communication procedure

81 (1) An employer must have in place a procedure, approved by the manager, to ensure timely communication of information between supervisors and persons working at the mine respecting

(a) the state of the ground control;

(b) the state of the ventilation;

(c) the presence of noxious or flammable gases;

(d) any hazardous or potentially hazardous condition;

(e) an emergency; and

(f) at a coal mine, a multiple shot blasting pattern

and any other information necessary to the health or safety of persons at the mine.

(2) The procedure required by subsection (1) must set out

(a) the means of communicating information;

(b) the kind of information to be communicated; and

(c) the action to be taken by persons working at the mine with respect to the information that is communicated to them.

(3) An employer must review the procedure required by subsection (1) at least once a year.

(4) In addition to the procedure required by subsection (1), an employer must develop and post in a conspicuous place a plan that shows work in progress and projected work for each section of the mine.

Use of radio frequencies

82 (1) An employer must ensure that radio frequencies are used underground only if

adequate precautions are taken to prevent

(a) the inadvertent operation of a blasting device that might respond to the radio frequencies or the radiated energy; and

(b) the inadvertent over-riding of a remote control.

(2) If radio frequencies are used in an underground communications system, an employer must ensure that

(a) the design is certified by an engineer, indicating that the system enables reliable communication underground at the mine and that precautions have been taken in accordance with subsection (1); and

(b) a competent person installs the system.

Underground illumination

83 An employer must ensure that permanent lighting of at least 50 lux is installed at all permanent facilities underground in the mine, except in a travelway, ventilation shaft, or any other area where work is not usually conducted.

Cap lamps provided while underground

84 (1) An employer must provide a person entering the underground with an adequate cap lamp.

(2) Every person must keep an adequate cap lamp in their possession while underground.

Cap lamp specifications

85 (1) An employer must ensure that a cap lamp purchased on or after the date these regulations come into force provides a peak illuminance of at least 1500 lux for 8 consecutive hours at 1.2 m from the light source.

(2) Within 12 months after the date these regulations come into force, an employer must ensure that a cap lamp that was purchased before the date these regulations come into force provides a peak illuminance of at least 1500 lux for 8 consecutive hours at 1.2 m from the light source.

Procedure for cap lamps

86 (1) An employer must develop a procedure for

(a) assessing cap lamps in accordance with the manufacturer's specifications to determine whether they are capable of meeting the requirements of Section 85; and

(b) assembling, operating, inspecting and maintaining cap lamps in accordance with the manufacturer's specifications.

(2) An employer must ensure that at a coal mine a cap lamp is of a type that is approved for use in a coal mine by Natural Resources Canada, MSHA, or an agency acceptable to the Director.

Self-rescuers

87 (1) An employer must provide every person who is permitted to enter the underground with

(a) an adequately maintained self-rescuer that meets the requirements of subsection (2); and

(b) training in the use of a self-rescuer.

(2) An employer must ensure that a self-rescuer

(a) provides protection against dust; and

(b) has a capacity of at least 60 minutes at 1% by volume of carbon monoxide in the air being tested.

(3) If a person might travel to a point that is further distant than 30 minutes traveling by foot from the surface or a refuge station, an employer must ensure that

(a) the self-rescuer provided in subsection (1) is capable of protecting the user for twice the time it would take the average person to travel by foot from the furthest point traveled to, to the closest of the surface or a refuge station, at 1% by volume of carbon monoxide in the air being tested; or

(b) if the person has access to a self-contained breathing apparatus at the person's workplace, the combined capacity of the self-contained breathing apparatus is capable of protecting a user for twice the time it would take the average person to travel by foot from the furthest point traveled to, to the closest of the surface or a refuge station;

(c) caches of self-rescuers are placed at adequate numbers of locations and that

  (i) each cache is located in an area in which the air will not become contaminated during an emergency, and

  (ii) each self-rescuer in a cache is capable of providing protection for twice the time it would take the average person to travel by foot to the closest of

    (A) the next cache,

    (B) the surface, or

    (C) a refuge station.

(4) A person must carry an adequate self-rescuer at all times while underground.

Procedure for assessing and maintaining self-rescuers

88 An employer must develop a procedure for

(a) assessing self-rescuers and self-contained breathing apparatuses, in accordance with the manufacturers' specifications, to determine whether they are capable of meeting the requirements of subsections 87(2) and (3); and

(b) operating, inspecting and maintaining self- rescuers and self-contained breathing apparatuses in accordance with the manufacturers' specifications.

Maximum hours of work underground

89 (1) In this Section, "longer shift" means a shift that is longer than 8 cumulative hours in any consecutive 24 hours, as recorded from the time a person goes underground until the person returns to the surface.

(2) Except as permitted in subsections (3) and (5), an employer must ensure that no mine worker is permitted to work, or no mine worker be requested to work, a longer shift except in the following circumstances:

(a) an emergency;

(b) to occasionally perform unscheduled work necessary for the continuation of normal production, if the need for doing the work during a longer shift could not reasonably be foreseen;

(c) on 1 day of a week, but only for the purpose of changing shift or avoiding work on a Sunday or holiday; or

(d) if the committee or the representative, if any, concludes, on the basis of evidence gathered using recognized scientific practices, that a longer shift will not expose the mine worker to a hazard to their health due to

(i) the effect of 1 hazardous substance present that is greater than the hazards to which the mine worker could lawfully be exposed at the workplace over an 8-hour shift,

(ii) the combined effects of 2 or more hazardous substances present that have similar toxicological effects, or

(iii) the independent effect of 2 or

The necessary majority required for the committee to reach a conclusion on the hazards of extended shifts is the majority set out in their rules of procedure, which are required by subsection 30(7) of the Occupational Health and Safety Act. (October 29, 2003) more hazardous substances present that have dissimilar toxicological effects.

(3) An employer must ensure that a conclusion made under clause (2)(d) is filed with the Director and that

(a) the committee or the representative, if any, delivers a copy of the conclusion to the manager and a union, if any, representing employees at a mine;

(b) a copy of the conclusion is posted at a conspicuous location at the workplace.

(4) An employer must ensure that no shift exceeds 16 hours in any consecutive 24- hour period.

Incentive bonus plans at a coal mine

90 (1) In this Section, "incentive bonus" means a reward or benefit, whether monetary or not, that an employer provides to any person that considers in any way the levels of production or corporate financial performance at an underground coal mine.

(2) An employer must ensure, subject to subsections (3) and (7), that no employee at a coal mine participates in an incentive bonus program.

(3) An employee at a coal mine may participate in an incentive bonus program that is

(a) developed following consultation with the employees and any other person who will benefit from the incentive bonus program;

(b) based, in part, on measures that recognize and reward acceptable group safety performance;

(c) based, in part, on measures that recognize and reward acceptable individual safety performance;

(d) based, in part, on arrangements that allow all employees and any other persons at the workplace, whether underground or not to participate in the incentive bonus program; and

(e) subject to the requirements of any collective agreement that may be in place.

(4) An employer must provide a copy of any proposed incentive bonus program to the committee or representative, if any, at least 90 days prior to the implementation of any incentive bonus program.

(5) The committee or representative, if any, must provide an opinion, based on any evidence gathered, whether the incentive bonus program at the workplace will expose a person to an increased risk of an incident, injury or accident.

(6) An employer must ensure that the opinion provided under subsection (5) is filed with the Director and that

(a) the committee or representative, if any, delivers a copy of the opinion under to the manager and to the union, if any, representing employees at a mine; and

(b) a copy of the opinion is posted at a conspicuous location at the workplace.

(7) The employer must not implement an incentive bonus program until they have received, in writing, an opinion from the committee or the representative, if any.

Contact with person working alone underground

91 (1) Subject to subsection (2), a supervisor or person authorized by a supervisor must visit, at least once every 2 hours, a person who is alone in an underground area of the mine if personal contact with another person would not otherwise be made at least once every 2 hours.

A person is considered to be "alone" if there is no one in the person's work area who can see the person well enough to be able to recognize when the person is in trouble. (October 29, 2003).

(2) Subsection (1) does not apply if

(a) the system of devices for communicating by voice, including the system required by Section 92, is used by the person who is alone to report to a supervisor or authorized person at least once every 2 hours;

(b) a record of a report made under clause (a) is kept for a period of at least 30 days; and

(c) the person who is alone is visited by a supervisor or authorized person at least once during the person's shift.

Communication system

92 (1) An employer must ensure that a system of devices for communicating by voice is provided, inspected and maintained at a mine.

(2) An employer must establish a surface location that is attended at all times whenever a person is underground by a competent person who is qualified with respect to underground operations.

See note in 77(1)(c) for discussion on the term "qualified".

A location is "attended" so long as:
1) the qualified person is present the majority of the time;
2) whenever the qualified person is not present, there is an ability to contact them immediately (i.e. cellular telephone). (November 29, 2003)

(3) The communication system required by subsection (1) must enable communication between the competent person at the surface location established under subsection (2) and any person at any

(a) collar of a shaft, including the collar of an internal shaft, if a shaft conveyance is used;

(b) landing station in a shaft;

(c) hoist room for a shaft, including the hoist room for an internal shaft;

(d) first aid station;

(e) refuge station;

(f) maintenance shop, crusher station, lunchroom, conveyor transfer station

or additional area designated by the Director.

(4) In addition to the requirements of subsection (3), an employer must ensure that the communication system required by subsection (1) enables a person who is in a

part of an active working to contact someone outside that area.

Primary access and auxiliary access to the underground

93 (1) An employer must provide and maintain a primary access and at least one auxiliary access.

(2) Despite subsection (1), an auxiliary access is not required during the exploration and preliminary development of the mine but an employer must ensure that the primary access in a coal mine is not advanced more than 500 m without an auxiliary access being provided to the underground.

(3) An employer must ensure that the primary and auxiliary accesses, in combination, provide at least 2 means of passage to the surface from each active working.

(4) An employer must ensure that there are at least 30 m of solid strata between the primary access and any auxiliary access unless the accesses are connected by a travelway.

(5) An employer must ensure that there is at least one travelway between the primary access and each auxiliary access.

(6) An employer must ensure that no mining is permitted within 60 m of a primary or auxiliary access, except during the initial development of the access.

Signs indicating direction to accesses, stations, hydrants, extinguishers, and self-rescuers

94 An employer must post separate signs in conspicuous places underground that are adequate in number and size indicating the direction to, and the location of

(a) the primary access and auxiliary access;

(b) the nearest refuge stations or first-aid stations;

(c) fire hydrants and other non-portable fire-extinguishers; and

(d) self-rescuer caches.

Design of opening to the surface

95 If a shaft or raise opens to the surface, an employer must ensure that an engineer designs the opening to the surface.

Minimum dimensions of a travelway

96 (1) An employer must ensure that a travelway is 1.5 m wide by 1.5 m high and does not contain any obstruction that would impede the passage of persons wearing self-contained breathing apparatuses and carrying an injured person on a stretcher.

The stated dimensions are minimums that may be exceeded. (November 29, 2003)

(2) Despite subsection (1), a travelway may be smaller if an employer develops an adequate procedure for the evacuation of injured persons.

Minimum means of access within the underground

97 (1) An employer must ensure that unless there are 2 means of access to the primary access or an auxiliary access, no mining is permitted in a production area or part of a production area.

(2) Despite subsection (1), mining is permitted in a part of a production area that has only a single travelway to the development workings of the production area if the production area is

(a) less than 250 m in length;

(b) mined by

(i) the room and pillar method, as long as no place in the area is more than 200 m from the means of access, or

(ii) remote control, if no person is present in the stope or panel, or

(iii) a stope or long wall-type mining.

(3) If a single travelway to an area might not be usable at any time when there are persons in the area, an employer must ensure that there is a second travelway to the primary or auxiliary access.

Permitted means of access within the underground at a mine

98 (1) An employer must provide a walkway, stairway or ladder to an underground area of a mine, except for a raise accessed by a raise climber, if the presence of a person in that area on a routine basis can reasonably be anticipated.

(2) An employer must provide a stairway, ladder, or raise climber for a travelway that is inclined at more than 20° and less than 50° to the horizontal.

(3) An employer must provide a raise climber or a ladder containing landing platforms at vertical intervals not exceeding 7.5 m if a travelway is inclined at 50° or more from the horizontal.

(4) If a ladder is inclined at more than 70° from the horizontal, an employer must ensure that the ladders between each landing platform are offset.

Landing platforms

99 (1) An employer must ensure that a landing platform is installed at any place underground where a ladder is offset from another ladder.

(2) A landing platform underground must have an opening large enough for

(a) a person wearing a self-contained breathing apparatus to pass through; or

(b) a stretcher bearing an injured person to pass through.

(3) If it is possible for a mine worker to fall from a platform to a lower platform in a ladder, an employer must ensure that the platform opening is covered by an adequate door that

(a) can be easily opened from above or below; and

(b) is sufficient to withstand 4 times the impact to which it could reasonably be subjected.

Shaft with ladder and skip

100 If a ladder and a skip occupy the same compartment in a shaft, an employer must ensure that

(a) the ladder is protected from material being hoisted; and

(b) no person is permitted in the shared compartment while the skip is in motion.

Warning signs at shafts

101 When repair work is being carried out in a shaft or when, for any other reason, the shaft could be dangerous to a person entering it, an employer must ensure that the shaft is fenced off and that warning signs are posted at all entrances to the shaft.

Passing beyond meeting station

102 (1) An employer at a coal mine must ensure that no person, other than a mine examiner carrying out an inspection or a person accompanying the mine examiner, passes beyond a meeting station at the start of a shift until

(a) the section is inspected by the mine examiner in accordance with subsection 116 and the mine examiner reports that the section is safe;

(b) the supervisor responsible for the section is informed that the mine examiner has reported that the section is safe in accordance with clause (a); and

(c) the supervisor responsible for the section instructs the person to pass.

(2) An employer at a coal mine must ensure that no person instructs a person to pass beyond the meeting station of a section at any time, unless the supervisor responsible for the section has information indicating that it is safe to pass beyond the meeting station.

(3) Despite subsection (2), a mine examiner may enter uninspected areas for the purpose of conducting a mine inspection.

Securing ground

103 (1) An employer must ensure that no person works or travels in any underground area of a mine unless that area has been assessed and secured in accordance with the ground control procedure.

(2) An employer must ensure that a mine worker inspects the roof, ribs, and face of their work area for any loose conditions before beginning any assigned work.

(3) If roof bolting is the primary means of ground support, an employer must ensure that all travelways with roof bolting have warning devices embedded in the roof that monitor any downward movement in the roof strata.

(4) An employer must ensure that all rock bolts or similar devices used in a mine comply with the requirements of CSA standard CAN/CSA-M430-90 (R1996), "Roof and Rock Bolts, and Accessories".

(5) If a person is assessing ground conditions underground and a cap lamp does not provide adequate illumination for the

assessment, an employer must supply, and the person must use, auxiliary lighting sufficient for effectively carrying out the assessment.

(6) An employer must ensure that a competent person installs any ground support devices required by the ground control procedure required by Section 52 in a manner that is suitable to the ground and rock conditions at the site of use.

Scaling

104 (1) If scaling bars are used, an employer must ensure that they

(a) are readily available to mine workers at the working face and in other active workings; and

(b) are adequately dressed, and are of such length and rigidity that the bar can be used at a 45° angle to the horizontal.

(2) A mine worker who is scaling using a scaling bar must remain on a firm, stable surface, take up a stable position and ensure that there is a free space to allow for sudden retreat.

(3) An employer must ensure that during scaling, no other work is carried on that hinders the work of scaling.

Water and saturated material

105 (1) If gravity is used to transfer solid material through an opening, an employer must take adequate precautions to ensure that water, frozen material or water-bearing material does not enter the opening in such quantities as to present a hazard to a person.

(2) If an ore or waste pass in an active working is found to contain a sufficient accumulation of water or saturated material to cause a flow, an employer must ensure that a procedure for the safe removal of the water or saturated material is developed by a competent person.

Cuttings from reaming of raise

106 An employer must ensure that cuttings from the reaming of a bored raise must not be allowed to accumulate above the brow of the raise.

Exploration or utility drill hole intersections

107 (1) An employer must ensure that a plan of work in progress and projected work required by subsection 81(4) shows all exploration or utility drill holes that intersect or come within 10 m of any part of a mine.

(2) When drilling of an exploration or utility drill hole is discontinued or an intersection is made with an existing hole, an employer must ensure that

(a) the exploration or utility drill hole is clearly marked in yellow paint, at the collar and any points of intersection or breakthrough, with a single capital letter "H" that is

(i) at least 25 cm by 25 cm in size, and

(ii) located within 1 m of the collar or intersection; and

(b) the approach underground to the collar of the exploration or utility drill hole or to any intersection with or breakthrough to another hole is securely closed off or guarded when

(i) mining is advancing within 10 m of the hole, or

(ii) blasting is to be done within 10 m of the intersection or breakthrough.

(3) In addition to the requirements of subsections (1) and (2), an exploration drill hole must be cemented for a minimum length of 5 m.

The 5 m is measured from any place where the hole is visible. (November 29, 2003)

Advancing within 100 m of hazards

The 100 m is measured in any direction, including vertically. (October 22, 2003)

108 (1) If an employer proposes to perform work within 100 m of

(a) a working, active or otherwise, on an adjacent property;

(b) an abandoned working at the mine site;

(c) a body of water or material that could flow; or

A "body of water" does not include snow or water in tanks. It does include streams. (October 22, 2003)

(d) a potentially dangerous concentration of gas

the employer must, at least 30 days before commencing work, file with the Director a plan and procedure certified by an engineer that explains the work to be done and how the work will be done, including an estimated start date.

(2) The Director may require changes or additions to the information required by subsection (1) for the purpose of determining the adequacy of the plan and procedure and whether a code of practice under Section 66 of the Act is required.

(3) An employer must not proceed with work referred to in this Section until the Director has given consent, or has accepted a code of practice referred to in subsection (2).

Dangerous drill hole contact

109 If a drill hole makes contact with a potentially dangerous accumulation of water or concentration of flammable gas, an employer must ensure that

(a) all work stops and all persons withdraw to a safe area until

(i) a competent person evaluates the situation and makes a report and the report is countersigned by the manger, and

(ii) appropriate measures are taken to

control the hazard; and

(b) if the contact is with flammable gas, the concentration is continuously monitored using an appropriate gas monitor during any further work in the area.

Advancing within 300 m of a body of water or material at a coal mine that could flow

110 In a coal mine, if a working face is advancing towards an area that is less than 300 m from a body of water or material that could flow, an employer must ensure that

(a) 1 exploration drill hole is driven in advance of a shortwall or longwall working face; and

(b) if there is a solid barrier of competent, unworked material of 150 m or less between the body of water and roof of the face,

(i) soundings are taken, at reasonable distances, for the purposes of determining the depth of the water, to a distance of at least 300 m in advance of the working face,

(ii) measurements are taken at the working face at least once every 3 months for the purpose of determining the thickness of the barrier, and

(iii) the location of the soundings and the measurements required by subclauses (i) and (ii) are marked on a plan of the underground workings that is kept readily available for examination by mine workers.

Advancing towards geological fault in coal mine

111 In a coal mine, if a working face is advancing towards an area where there is likely to be a geological fault 50 m or less from the working face, an employer must ensure that

(a) 1 exploration drill hole is driven in advance of a shortwall or longwall working face; and

(b) if the throw or dislocation of the geological fault exceeds 10 m or the faces of the fault plane are separated by material more than 60 cm thick, no work is carried out within 10 m of the fault unless the work is carried out in accordance with a procedure, including a plan, approved as adequate by an engineer, that includes

(i) the work proposed to be performed,

(ii) any hazard or potential hazard to persons as a result of the proposed work,

(iii) a strategy to deal with a hazard or potential hazard that is identified,

(iv) the likely location of the geological fault,

(v) the position, direction and extent of the known geological faults and the displacement of the faults in and around the 10 m area,

(vi) the nature, direction and dip of the material to be mined in and around the 10 m area,

and any additional information required by the Director.

Advancing within 10 m of active working

112 If an active working advances within 10 m of breaking through to another active working, an employer must ensure that

- (a) an examination is made of the active working towards which the active working is advancing; and
- (b) no connection is made between the active workings unless
  - (i) the examination under clause (a) has shown that the work can proceed in a adequate manner, and
  - (ii) precautions are taken in the active working towards which the active working is advancing to
    - (A) protect against blasting fumes, rock falls and fly rock, and
    - (B) guard the point of connection between the active workings at the active working that is being advanced upon to prevent persons from entering the area of potential hazard.

Underground fill

113 (1) Before using any material for fill underground, an employer must ensure that

- (a) the material is tested to ensure
  - (i) its suitability for the purpose, including test of its permeability characteristics and stability;
  - (ii) that it does not include sulphide material in quantities that might induce spontaneous combustion or self-heating and that it under no circumstances contains over 20% sulphide by mass of the fill being tested; and
- (b) an engineer certifies that the material meets the requirements of clause (a).

(2) An employer must not use sand, slag, waste rock, or tailings for fill underground, unless

(a) any liquid in the sand, slag, waste rock or tailings contains less than 20 mg cyanide per litre of liquid;

(b) the liquid effluent from the filled area contains less than 20 mg of cyanide per litre of liquid; and

(c) an engineer certifies that the fill meets the requirements of clauses (a) and (b).

(3) If sand, slag, waste rock or tailings are used for fill underground, an employer must develop a procedure for backfilling and ensure that it is approved as adequate by an engineer.

(4) An employer must ensure that no person is permitted to go onto fill underground without protection that is sufficient to prevent

(a) subsidence of the fill resulting in an unsafe condition; or

(b) an adverse reaction in the person from physical contact with the fill.

Backfilling of abandoned panel or abandoned stope

114 (1) If a solid barrier of 40 m of competent, unworked material does not exist above the roof of a panel or stope that is abandoned on or after the date these regulations come into force, the employer must backfill the panel or stope to ensure against a sudden collapse of ground at the surface, unless the employer

(a) notifies the Director of their intention not to backfill the abandoned panel or abandoned stope; and

(b) files with the Director a report, prepared by an engineer that includes

(i) a soil distribution study,

(ii) a study of the mechanical properties of the soil,

(iii) a study of the mechanical properties of the rock,

(iv) a study of the hydrogeological conditions,

(v) any recommended terms or conditions that, in the engineer's opinion, are necessary for the protection of the health or safety of persons who might be affected by an unexpected collapse, including any recommended monitoring or alternatives and the results to be expected,

(vi) the engineer's opinion that the ground at the surface above the abandoned panel or abandoned stope will not collapse in a manner that might endanger persons on the surface or underground

and any additional information required by the Director.

(2) An employer must ensure that the report referred to in clause (1)(b) is kept while the mine is in operation.

(3) An employer must comply with any recommendations contained in the engineer's report prepared under clause (1)(b).

Intent of this Section is to provide for a review by the employer prior to proceeding with the class of work specified in the Section. (December 9, 2003)

Mining in area of construction

115 (1) Before constructing a dam, bulkhead, permanent stopping, temporary stopping, or explosion-proof barrier, an employer must ensure that an engineer

(a) prepares a report which

(i) defines the construction area, and

(ii) advises of the hazards that could reasonably be anticipated during construction, and

(b) provides a copy of the report to the manager before the work commences.

(2) An employer must ensure that the report referred to in clause (1)(b) is kept while the mine is in operation.

(3) An employer must ensure that no person, other than a person involved in the construction of the dam, permanent stopping, temporary stopping or explosion-proof barrier, is permitted to work in the construction area defined by an engineer under subsection (1) until the engineer has provided a professional opinion to the manager that it is safe to work in the area, except that

(a) a person may work in the area for the purpose of conducting tests under the direction of an engineer and in accordance with a procedure developed by the engineer; and

(b) if a temporary stopping is constructed for the purpose of fire-suppression no person other than a person involved in fire-fighting or rescue may enter for at least 24 hours from the time the stopping is constructed.

General inspections at a non-coal mine

116 An employer at a non-coal mine must ensure that an inspection is made of

(a) every place underground that is being ventilated and is an area where persons are permitted to travel, by a competent person at least once a week or more often as conditions necessitate;

(b) every underground travelway where persons normally travel on a daily basis, by a competent person at least once during each shift; and

(c) every underground area where mine workers are working, by a supervisor at least once a day.

General inspections at a coal mine

117 (1) An employer must ensure that a mine examiner at a coal mine inspects

(a) each working face of the mine

(i) within the 4 hours immediately before the beginning of each shift in a section, and

(ii) if persons are present, at intervals not exceeding 8 hours after the initial inspection referred to in subclause (i); and

(b) each place underground

(i) at which material is being worked to repair or enlarge a travelway,

(ii) from which equipment, tools, or supports are being removed or salvaged, or

(iii) at which persons might work and through which persons do not regularly travel,

that is not included in a section, at the beginning of each shift and at least once during each shift.

(2) In addition to the inspections required by subsection (1), an employer must ensure that a mine examiner at a coal mine also inspects

(a) at least once during each shift, every part of a section that is allotted to the mine examiner for inspection purposes;

(b) at least once during each shift, the condition and position of the stone-dust barriers and water barriers;

(c) at least once every 24 hours every underground travelway where persons normally travel on a daily basis; and

(d) at least once every 24 hours, areas that are ventilated but not occupied;

(e) at least once per week, all shafts, other than shafts that are used solely for ventilation, and all accessible stoppings; and

(f) at least once per week, the bottom and top of each shaft that is used solely for ventilation.

(3) An employer must ensure that a supervisor at a coal mine who is responsible for a section inspects every part of the section at least once during each shift.

Report on general inspection at mine

118 (1) An employer must ensure that a person who performs an inspection under Section 116 or 117 must, before going off shift, prepare a written report of the inspection including

(a) the state of the ground conditions;

(b) the state of the ventilation;

(c) the presence of noxious or flammable gases;

(d) a record of any ventilation, flammable gas and noxious gas readings taken and the locations where the readings were taken;

(e) information regarding equipment that is unsafe;

(f) any hazardous or potentially hazardous condition; and

(g) in a coal mine only,

(i) information regarding the condition and position of the stone-dust barriers and water barriers, and,

(ii) the person's observations regarding stone-dust and accumulations of water.

(2) An employer must ensure that, in addition to the information included in the inspection report required by subsection (1), a supervisor who carries out an inspection under Section 116 or subsection 117(3) includes the following in their report:

(a) any unsafe condition reported to the supervisor, whether remedied or not;

(b) a hazardous or potentially hazardous condition that is not remedied or removed by the end of the shift and, with respect to such a condition,

(i) the state of any corrective measures taken,

(ii) work required to be done to remedy or remove the hazardous or potentially hazardous condition, and

(iii) the supervisor's observations regarding stone-dust and accumulations of water.

Communication of inspection information

119 (1) An employer must ensure that the information required to be reported under Section 118 is

(a) communicated to the first-line supervisor on the incoming shift who, at a non-coal mine, is assigned responsibility for the corresponding area of the mine or, at a coal mine, is responsible for the section;

(b) discussed by the first-line supervisor with the mine workers under their supervision on the incoming shift, before the mine workers are permitted to work in the areas addressed in the reports; and

(c) countersigned by the first-line supervisor on the in-coming shift within 24 hours following the end of that shift.

(2) An employer must ensure that a first-line supervisor communicates any unsafe conditions identified in a report under Section 118 in accordance with the communication procedure required by Section 81.

Routine inspection and testing for flammable gas at coal mine

120 An employer must ensure that at least every 7 days, a mine examiner at a coal mine tests the air

underground not more than 50 cm from the roof for the layering and content of flammable gas at

(a) the primary return airway;

(b) the return airway of each split where it enters the primary return airway;

(c) accessible returns from workings that are not active workings;

(d) at least one seal of each sealed area, if accessible; and

(e) all working faces,

and at any additional locations the manager requires.

General inspection at coal mine on behalf of mine worker

121 (1) At the request of at least 1 mine worker who is not a supervisor, an employer at a coal mine must permit an inspection or a test for flammable gas to be done by a competent person selected by the mine worker and the mine worker must pay the costs of that inspection or test.

(2) A mine worker who wishes to request an inspection or test under subsection (1) must consult with the committee, or representative, if any, before requesting the inspection or test.

(3) The person who is to conduct the inspection or test requested under subsection (1) must consult with the committee, or representative, if any, prior to undertaking the inspection or test.

(4) If a mine worker who requests an inspection or test under subsection (1) further requests that the inspection or test be conducted on a regular basis, the employer must permit the person selected to conduct the inspection or test to, at least once a month,

(a) inspect any place underground to which safe access is possible; and

(b) test for flammable gas underground.

(5) The manager and the mine workers at a coal mine must provide the person selected to conduct a requested inspection or test under subsection (1) with any assistance necessary to conduct the inspection or test.

(6) During an inspection or test requested under subsection (1), the manager or another representative of the employer may accompany the person conducting the inspection or test.

(7) A person who conducts an inspection or test referred to in subsection (4) must report the results of the inspection or test, in writing, to

the employer and to the committee, or representative, if any, and the employer must post the report in a conspicuous place near the entrance to the underground of the coal mine.

(8) An employer must ensure that a report referred to in subsection (7) is kept while the coal mine is in operation.

Examination of workplace and report by mine workers

122 (1) Before commencing work and as often as the nature of the work necessitates, a mine worker must inspect their workplace for hazardous or potentially hazardous conditions and must ensure that the workplace is safe.

(2) If a mine worker is competent and capable to do, the mine worker must correct any hazardous or potentially hazardous condition before work is begun, resumed, or continued.

(3) If the mine worker is unable to make the workplace safe, the mine worker must barricade the workplace and communicate its condition in accordance with the communication procedure required by Section 81.

Hazardous or potentially hazardous conditions

123 (1) A supervisor who becomes aware of an unsafe condition, must ensure that

(a) all persons, other than a person whose presence is necessary to correct the unsafe condition, are evacuated from the area affected by the unsafe condition and remain out of the area until the unsafe condition is remedied; and

(b) a sign warning persons of the unsafe condition is posted in a conspicuous place at all entrances to the area affected by the unsafe condition.

(2) An employer must ensure no person is permitted to enter an area for which there is a

warning sign posted in accordance with clause (1)(b) except for a person whose presence is necessary to correct an unsafe condition.

(3) If a supervisor or a mine examiner who is carrying out an inspection under Sections 116 or 117 and finds equipment to be unsafe or is informed that equipment is unsafe, the supervisor or the mine examiner, as the case may be, must post a copy of the inspection report required by Section 118 in a conspicuous place, at the appropriate meeting station.

(4) No person is permitted to use equipment that is reported to be unsafe until it is deemed to be safe by a competent person, and this fact is communicated to the first - line supervisor responsible for the equipment.

Part 4 - Emergency Preparedness and Mine Rescue

Emergency Preparedness Program

124 In this Part, "emergency preparedness program" means the emergency preparedness program required by subsection 125(1).

125 (1) An employer must develop an emergency preparedness program in consultation with

(a) the committee, or representative; if any

(b) the local municipality; and

(c) the Emergency Measures Organization, as defined in the *Emergency Measures Act*;

(2) An employer must ensure an that an Emergency Preparedness Program includes

(a) a list of the persons, on and off the mine site, whose services are needed to respond in an emergency, their telephone numbers and contact information, and their assigned responsibilities;

(b) an organizational chart that includes

(i) the names of the persons listed in (a) and their assigned responsibilities, and

(ii) the contact information for emergency services agencies of the local municipality or the Province that provide services as part of the Emergency Preparedness Program;

(c) procedures for notifying agencies or authorities as required by these regulations or the Emergency Preparedness Program;

(d) a list of all emergency supplies and equipment, including

(i) the quantity of each item,

  - (ii) a description of the location of each item, and
  - (iii) details on the use of each item;

(e) an adequate procedure for fighting fires at the mine;

(f) a mine rescue procedure for the underground, to be followed in the event of an emergency, including

  - (i) the circumstances under which the mine rescue procedure must be implemented,
  - (ii) how mine rescue teams and equipment will be prepared,
  - (iii) how the aid agreement required by Section 142 will be implemented,
  - (iv) instructions to be followed on the surface and underground to ensure adequate direction and supervision when the mine rescue procedure is implemented, and
  - (v) written instructions describing how to evacuate each workplace;

(g) a description of the warning system for the underground required by Section 131;

(h) details on the availability of

  - (i) emergency communication facilities,
  - (ii) emergency transportation facilities,
  - (iii) emergency power equipment, and
  - (iv) ventilation equipment;

(i) a plan that shows the location of all fire-extinguishing equipment, fire-suppression systems, and fire hydrants; and

(j) a description of training to be offered to municipal emergency response staff.

(3) An employer must ensure that the Emergency Preparedness Program, to the extent reasonably practicable, is coordinated with

(a) all emergency plans developed; and

(b) support services provided

by the local municipality and the Province.

(4) An employer must file the Emergency Preparedness Program with the Director and keep a copy of it for at least of 2 years after it is revised, or becomes obsolete.

Distribution of copies of Emergency Preparedness Program

126 An employer must ensure that

(a) copies of the Emergency Preparedness Program are available to employees;

(b) each person who works at the mine who has assigned responsibilities under the Emergency Preparedness Program receives adequate training and up-to-date information relating to their responsibilities; and

(c) each person or resource who has assigned responsibilities under the Emergency Preparedness Program, but does not work at the mine, receives an up-to-date copy of the Emergency Preparedness Program.

Posting of emergency procedures, evacuation procedures and current versions of documents

127 An employer must ensure that a copy of the written instructions required by clause 125(2)(f)(v) describing how to evacuate each workplace, is posted at conspicuous places in each area of the mine to which the instructions apply, including at

every shaft station, and in every underground garage or shops, refuge station, first-aid station, and lunchroom.

Notifying Director of emergency

128 An employer must notify the Director immediately when the employer implements the Emergency Preparedness Program, except in the case of a test of its operation.

Monitoring of Emergency Preparedness Program

129 (1) An employer must permit an officer to monitor all emergency preparedness program operations.

(2) Despite the content of an Emergency Preparedness Program, an officer monitoring its implementation may make any order or take any action authorized by the Act to ensure the safety of a person at the mine.

The intent here is that an officer may use their authority to prevent rescuers health and safety being unnecessarily jeopardized. It is not the intent that the officer would direct any operation. (November 29, 2003)

Training of municipal emergency response staff

130 An employer must, at least once a year, offer municipal emergency response staff the training referred to in clause 125(2)(j).

Warning system

131 (1) An employer must establish, construct, operate, inspect, and maintain a warning system for the underground that is made up of

(a) an alarm that is adequate to simultaneously warn persons underground of an emergency requiring prompt evacuation of their workplaces, and persons on the surface of the emergency; and

(b) procedures for

(i) activation of the alarm, and

(ii) adequate response by persons to the alarm.

(2) An employer must ensure that the alarm required as part of the warning system

(a) is protected against weather at all times, maintained and available for immediate use; and

(b) if powered, has a back-up power source, or a system that uses various power sources, for its activation system.

(3) For greater certainty, an alarm required as part of the warning system need not be powered.

(4) An employer must post an explanation of the use of the warning system and a copy of the procedures required under clause (1)(b) that are applicable to a particular area of the mine, at a conspicuous location in that area, including at every shaft station, in underground garage or shop, refuge station, first-aid station, and lunchroom.

Training for warning system

132 An employer must ensure that all persons working at the mine are adequately instructed and trained regarding their duties and responsibilities if the warning system is implemented.

Testing of warning system

133 (1) Each year an employer must, without prior notice, conduct at least one test of the warning system for each shift at the mine.

(2) The tests required by subsection (1) must be taken

(a) at different dates, spread out over the year; and

(b) during shifts that include the maximum number of mine workers at the mine.

(3) An employer must ensure that the results of the tests required by subsection (1) are recorded.

Maintenance and storage of mine rescue equipment

134 (1) An employer must designate a competent person to construct, operate, inspect, maintain and dismantle the mine rescue equipment.

(2) An employer must ensure that the mine rescue equipment is

(a) constructed, operated, inspected, maintained and dismantled in accordance with the manufacturer's specifications;

(b) stored in a room set aside for the sole purpose of storing it; and

(c) readily available for use.

Record mine rescue equipment and maintenance

135 The employer must keep a record of

(a) the mine rescue equipment intended for use at the mine, for as long as the equipment is intended for use at the mine; and

(b) equipment maintenance records for the mine rescue equipment intended for use at the mine for as long as the equipment is intended for use at the mine plus 2 years.

Plans readily available to mine rescue team

136 (1) An employer must make readily available to a mine rescue team any information required in an emergency by the mine rescue team including the

(a) mine survey plan required by Section 50;

(b) electrical installations plan required by Section 51;

(c) ground control procedure required in Section 52; and

(d) ventilation plan required in Section 53.

(2) An employer must provide an up-to-date plan of the mine that is adequate for mine rescue purposes to a mine rescue team before the team engages in a mine rescue operation.

Fresh air base

137 (1) If required during a mine rescue operation, an employer may establish a fresh air base underground to be used as a base for the mine rescue operation.

(2) During a mine rescue operation, an employer must ensure that

(a) for each mine rescue team that is actively engaged in mine rescue work, there is, at the nearest to the actively engaged team's source of fresh air, a mine rescue team fully equipped and ready to carry out a rescue; and

(b) for each mine rescue team required by clause (a), there is a mine rescue team available at the mine.

Communication system for mine rescue teams

138 (1) An employer must ensure there is system of devices available for communicating by voice during a mine rescue operation that enables

(a) adequate contact between the surface and any fresh air base; and

(b) where reasonably practicable, contact between the surface or fresh air base and all mine rescue teams operating underground.

(2) An employer must designate a competent person to transmit instructions to a mine rescue team engaged in a mine rescue operation, and no other person is permitted to transmit instructions to a mine rescue team.

(3) The competent person designated under subsection (2) must give the instructions to all members of the mine rescue team simultaneously, except when this is not reasonably practicable.

Set of mine rescue equipment

139 A set of mine rescue equipment consists of

(a) a direct reading hand-held meter capable of giving a determination within 5 minutes of the start of the sampling period of the concentration of flammable gas, oxygen and noxious gases or vapours likely to be encountered during a mine rescue;

(b) a positive-pressure oxygen therapy apparatus capable of supplying oxygen for medical use at a constant flow of at least 6 L per minute for a duration of at least 25 minutes;

(c) a basket-shaped stretcher equipped with restraining straps;

(d) 2 blankets;

(e) 1.5 m of utility rope;

(f) 2 horns;

(g) 3 hand-held smoke-making devices;

(h) a cane with a brass tip;

(i) a link-line capable of linking all members of a mine rescue team;

(j) notebooks, chalk and pens;

(k) 2 atmosphere-supplying self rescuers, not including those already assigned to persons underground;

(l) 6 self-contained breathing apparatuses with full face pieces and a minimum utilization time of 4 hours; and

(m) such auxiliary equipment and supplies as recommended by the manufacturer or supplier of any of the mine rescue equipment specified in this Section.

High pressure oxygen booster pump

140 (1) An employer must ensure that each mine has at least 1 high-pressure oxygen booster pump that is capable of boosting the pressure in the cylinder being charged to at least 30 MPa for use in a mine rescue operation.

(2) Subsection (1) does not apply to a mine that has fewer than 50 mine workers employed, as long as the aid agreement required by Section 142 provides for the supply of a pump described in subsection (1) to the mine.

Minimum requirements for mine rescue workers and equipment

141 (1) An employer at a mine that has 10 or fewer mine workers employed must ensure that the mine has

(a) at least 2 designated mine rescue workers from among the mine workers employed at the mine; and

(b) one set of mine rescue equipment, except that despite clause 139(l), the mine is only required to have 2 self-contained breathing apparatuses.

(2) An employer at a mine that has more than 10 but fewer than 50 mine workers employed must ensure that the mine has

(a) at least 1 mine rescue team made up of mine workers employed at the mine; and

(b) 1 set of mine rescue equipment for each mine rescue team.

(3) An employer at a mine that has more than 50 but fewer than 100 mine workers employed must ensure that the mine has

  (a) at least 2 mine rescue teams made up of mine workers employed at the mine; and

  (b) 1 set of mine rescue equipment for each mine rescue team.

(4) An employer at a mine that has more than 100 but fewer than 150 mine workers employed must ensure the mine has

  (a) at least 3 mine rescue teams made up of mine workers employed at the mine; and

  (b) 1 set of mine rescue equipment for each mine rescue team.

(5) An employer at a mine that has 150 or more mine workers employed must ensure the mine has,

  (a) at least 4 mine rescue teams made up of mine workers employed at the mine; and

  (b) 1 set of mine rescue equipment for each mine rescue team.

Requirement for mine rescue worker aid agreement

142 An employer must have an aid agreement, in writing, with another source to supply the number of fully equipped mine rescue workers that is adequate to effect a mine rescue at the mine.

An aid agreement is not required if an employer can staff the full mine rescue effort themselves, allowing for the fact that some mine rescue team members may be "victims" and thus not available to serve on a mine rescue team. (November 29, 2003)

Mine rescue team

143 An employer must ensure that a mine rescue team consists of at least 6 designated mine rescue workers one of whom must be designated a spare and another one of whom must be designated mine rescue team captain.

Surface fire-extinguishing equipment

144 An employer must ensure that there is adequate surface fire-extinguishing equipment at the mine, or make arrangements to ensure that the equipment is immediately available in the event of a fire.

Surface fire-fighting team

145 (1) An employer must ensure that a team of 4 persons who

(a) are skilled in fire-fighting; and

(b) practice as a fire-fighting team at least once a year

is designated to use the surface fire-extinguishing equipment.

This subsection requires that 4 workers be trained in fire fighting. However, it does not require that all four be present when actually fighting a fire. (October 29, 2003)

(2) The team of persons required by subsection (1) may include persons not working at the mine.

Refuge stations required

146 (1) An employer must construct, inspect, and maintain a refuge station every 300 m underground in an active working if a person has to travel more than 500 m to reach

(a) the mine exit; or

(b) if a shaft conveyance is used to reach the surface, a shaft station.

(2) Subsection (1) does not apply to those parts of a mine being developed by an adit or slope or during shaft development operations.

Construction and location of refuge stations

147 (1) An employer must ensure that a refuge station can be sealed to prevent the entry of gases and is constructed

(a) in competent, non-combustible rock;

(b) if it is a non-portable refuge station in a coal mine, of competent rock that may be coal, if there is an adequate non-combustible sealed barrier between the coal and the occupied space; or

(c) if it is a portable refuge station, of non-combustible material.

(2) An employer must ensure that a refuge station has adequate drainage for liquid and gaseous waste.

(3) An employer must ensure that all parts of any compressed air lines, or water lines supplying the refuge station are made of non-combustible materials.

(4) An employer must ensure that a refuge station is located

(a) at least 100 m from a magazine, diesel fuel storage area, fueling station or battery charging station; and

(b) where reasonably practicable, in intake air.

(5) An employer must ensure that a refuge station has on the outside of the refuge station, an audible signaling device and a sign identifying it as a refuge station.

Air supply in refuge station

148 An employer must ensure that a refuge station has an air supply that is adequate to sustain, for a minimum of 8 hours, the life of the maximum number of mine workers intended to be sheltered there, by ensuring that the refuge station is

(a) large enough to contain the required air supply; or

(b) equipped with a means of supplying the required air supply by way of compressed air or oxygen.

Equipment in refuge station

149 An employer must ensure that a refuge station is equipped with

(a) an oxygen and flammable gas detector;

(b) a manometer with a scale, mounted on the wall of the refuge station, capable of measuring the pressure difference between the inside and outside of the refuge station;

(c) an adequate supply of potable water that, if supplied in containers, is exchanged for fresh water at least once a month, or is kept until its expiry date if the supply is sealed and date-stamped by a water supplier.

(d) adequate toilet facilities, tables and benches;

(e) an adequate means of voice communication with the surface;

(f) adequate emergency lighting

(g) a Number 2 First Aid Kit as defined by the *Occupational Health and Safety First Aid Regulations* made under the Act;

(h) a basket-shaped stretcher with restraining straps;

(i) 2 blankets; and

(j) razors for shaving facial hair.

Requirement for refuge station procedures

150 An employer must ensure that procedures are prepared for the use of a refuge station during an emergency that include

(a) instructions for the conduct of persons in the refuge station;

(b) instructions for entering the refuge station in a manner that protects the health and safety of persons sheltered inside the refuge station; and

(c) a prohibition on smoking.

Procedures posted at refuge stations

151 An employer must ensure that the procedures required by Section 150 are posted in a conspicuous place on the inside and on the outside of each refuge station.

Permitted uses of refuge stations

152 An employer must ensure that a refuge station is not used for any purpose other than as a lunchroom, office, or storage area for first aid supplies and equipment, for the delivery of first aid, or as a place of refuge during an emergency.

Monthly inspection of refuge stations

153 At least once a month, an employer must ensure that a designated person at the mine inspects, maintains and re-supplies the refuge stations and prepares a report of the inspection and any maintenance performed.

Part 5 - Fire Prevention

Definitions

154 In this Part,

(a) "diesel fuel transfer system" means a system for the transfer of diesel fuel from a surface storage tank to an underground storage tank;

(b) "hot work" means

(i) work, including welding, cutting or soldering, that produces arcs, sparks, flames, heat or other sources of ignition, and

(ii) the use of an internal combustion engine; and

(c) "NFPA" means the National Fire Protection Association of the United States.

General fire prevention underground

155 (1) In areas in a non-coal mine where smoking or the use of open-flame lamps, matches or other objects capable of producing heat or fire is not prohibited under Section 156 an employer must ensure that no person starts or builds a fire underground unless the person is authorized to do so and has adequate fire-extinguishing equipment immediately available.

(2) An employer must remove flammable refuse from the underground as soon as reasonably practicable.

(3) An employer must ensure that no device for the generation of acetylene gas is permitted underground.

No smoking or open flame at a non-coal mine

156 (1) An employer at a non-coal mine must ensure that no person smokes or uses open-flame

lamps, matches or other objects capable of producing heat or fire at the places referred to in subsection (2).

(2) An employer at a non-coal mine must post a sign prohibiting smoking and open flames in a conspicuous place

(a) at a battery charging station on the surface or underground;

(b) at a transformer containing flammable material on the surface or underground;

(c) at a place on the surface or underground if a fire hazard might be created by smoking, or open flames;

(d) at an area on the surface or underground in which flammable materials are kept in a storage area;

(e) within 10 m of a fueling station containing flammable material;

(f) underground within 10 m of explosives, a temporary storage box or a blasting area;

(g) underground on within 10m of mobile equipment; and

(h) underground within any other area that is likely to contain any flammable, or explosive material.

No smoking or open flame at a coal mine

157 (1) At a coal mine, no person is permitted to smoke or use open-flame lamps, matches or other objects capable of producing heat or fire, or to have in their possession any objects capable of producing heat or fire,

(a) underground;

(b) when preparing to enter the underground;

(c) on the surface within 30 m of an opening to the underground; or

(d) on the surface at the places referred to in subsection (3),

and an employer must ensure that no person contravenes this subsection.

(2) An employer at a coal mine must post a sign at a conspicuous place near the entrance to the underground prohibiting smoking or open flames underground or when preparing to enter the underground area of a mine.

(3) An employer at a coal mine must post a sign at a conspicuous place prohibiting smoking and open flames on the surface

(a) at an area in which flammable material is kept in a storage area;

(b) at a battery charging station;

(c) at a fueling station containing diesel fuel;

(d) at a transformer containing flammable material; and

(e) at a place where a fire hazard might be created

(i) by smoking or open flames, or

(ii) from flammable gas or coal dust,

and that is designated in writing by the manager as a fire hazard area.

Random searches at a coal mine

158 An employer must ensure that a manager at a coal mine designates at least 1 person to conduct searches of persons prepared to enter the underground for the objects capable of producing heat or fire.

159 (1) An employer must ensure that a manager at a coal mine ensures that searches for objects capable of producing heat or fire are conducted at random intervals not exceeding 1 month, on

(a) every person who is not normally employed underground, but is granted access to the underground, immediately before the person goes underground; and

(b) at least 10% of mine workers who are normally employed underground, after the mine workers leave the wash house and before the mine workers go underground, or at any time when the mine workers are underground.

(2) A search required under subsection (1) must be witnessed by

(a) the manager or the person responsible for the overall supervision of operations underground, and

(i) a competent person designated by the manager, or

(ii) a member of the committee or representative, if any; or

(b) 2 competent persons designated by the manager.

(3) A person who is to be searched under this Section may, instead of being searched by a person designated in subsection (1), search themself in the presence of the witnesses required by subsection (2) and 2 witnesses of the person's own choosing.

(4) An employer must ensure that a person underground at a coal mine who is found to have in their possession any object capable of producing heat or fire is instructed to leave, and leaves, the coal mine as soon as this can be done without jeopardizing the safety of others.

(5) An employer must ensure that following a search required by subsection (1), a record is made of all findings and that the record is kept for at least 10 years after the date of the findings.

(6) An employer at a coal mine must post a sign at a conspicuous place near the entrance to the underground stating that random searches on a person for objects that produce heat or

fire may be carried.

Hot work at a non-coal mine

160 (1) At a non-coal mine, if procedures for the safe use of hot work equipment are developed and implemented by an employer, a blow torch or welding, cutting or other hot work equipment may be used

(a) despite Section 156, in the places referred to in clause 156(2)(a), (b) and (c); or

(b) in any other place underground that is not listed in clauses 156(2)(d) to (h).

(2) When hot work equipment is used in any of the places permitted under subsection (1),

(a) unless wetting down will create a hazard because of ice formation or the presence of an electrical installation, the area a minimum of 10 m in any direction from any area that contains a flammable object or substance and that could be affected by the equipment must be wet down

(i) before the work begins, and

(ii) when the work is stopped and the person using the hot work equipment intends to leave the site of the hot work;

(b) the area adjacent to the site where the hot work equipment is used must be examined for potential fire hazards

(i) before the work begins, and

(ii) when the work is stopped and the person using the hot work equipment intends to leave the site of the hot work, and

(iii) at least 1 additional time approximately 2 hours after the work is stopped;

(c) adequate fire-extinguishing equipment must be readily available for use at the workplace where the hot work equipment is used.

Procedures for hot work at a coal mine

161 (1) At a coal mine, despite subsection 157(1), if procedures for the safe use of hot work equipment are developed by an employer, certified as adequate by an engineer and countersigned by the manager and all the work using hot work equipment is conducted in accordance with the procedures, a blow torch or welding, cutting or other hot work equipment may be used anywhere underground, except at

(a) an area in which flammable material is kept in a storage area; or

(b) a fueling station containing diesel fuel.

(2) An employer at a coal mine must file a notice with the Director of the employer's intent to develop procedures for hot work at least 30 days before the first use of hot work equipment.

(3) An employer at a coal mine must

(a) give 24 hours notice to the committee or representative, if any, on each occasion before hot work is carried out; and

(b) allow a committee member, or representative, if any, to observe the hot work.

(4) In addition to the hot work procedures required under subsection (1), an employer must ensure that a supervisor issues written instructions to a person using hot work equipment in a coal mine before the hot work equipment is used, respecting

(a) the type of work;

(b) the location of the work;

(c) when the work is to be done; and

(d) any special measures to be taken before, during or after the work is carried out.

(5) An employer must ensure that the written instructions referred to in subsection (4) are kept for a period of 2 years after they are replaced by revised written instructions, or become obsolete.

(6) When hot work equipment is used in a coal mine

(a) unless wetting down will create a hazard such as ice formation, the area within 20 m in any direction from the site of the hot work must be wet down

(i) before the work begins, and

(ii) when the work is stopped and the person using the hot work equipment intends to leave the site of the hot work;

(b) the area within 20 m in any direction from the site of the hot work must be examined for potential fire hazards

(i) before the work begins,

(ii) when the work is stopped and the person using the hot work equipment intends to leave the site of the hot work,

(iii) at least 1 additional time approximately 2 hours after the work is stopped; and

(c) adequate fire-extinguishing equipment must be readily available for use at the site of the hot work.

(7) An employer at a coal mine must designate a competent person to ensure that

(a) an accumulation of coal dust within the 20 m in any direction from the site where hot work equipment is to be used is removed, to the extent reasonably practicable, before the hot work equipment is used; and

(b) the area within 20 m in any direction from the site where the hot work equipment is to be used is stone-dusted before hot work begins, to the standard required under these regulations.

(8) In addition to other requirements of these regulations respecting stone-dust, an employer must ensure that an adequate quantity of spare stone-dust is readily available at a site of hot work.

(9) A mine examiner must test for flammable gas at a site in a coal mine where hot work equipment is being used before and periodically during the use of hot work equipment, and work must be halted if the flammable gas reaches or exceeds 0.5% by volume in the air being tested.

(10) After completing hot work at a coal mine, the person who did the work must thoroughly examine the site of the hot work for sparks, flames or smoldering debris.

(11) An employer at a coal mine must ensure that a competent person trained in the use of a flammable gas detector maintains a fire watch at the site of any hot work for at least 24 hours after the completion of the work, and that the competent person has readily available for use

(a) adequate fire-extinguishing equipment;

(b) an adequate quantity of stone-dust; and

(c) the equipment to measure gas.

(12) An employer at a coal mine must ensure that hot work equipment used underground or within 25 m of an opening to the underground is

(a) never left unattended;

(b) removed from the underground or from within 25 m of an opening to the underground as soon as work is completed or at the end of the shift during which work is completed; and

(c) stored on the surface.

Proximity to flammable material

162 (1) In this Section "fire- resistance rating" means the time that a material or assembly of materials will withstand the passage of flame and the transmission of enough heat to cause a fire.

(2) An employer at a mine with both a primary access and an auxiliary access must ensure that a building, including a shafthead building, erected within 30 m of the centre of the primary access or auxiliary access is constructed of material with a fire-resistance rating of at least 1 hour.

This subsection addresses the construction of surface buildings near an access. The subsection does not require the structural supports for a shaft itself to be constructed of fire-resistant material. (October 29, 2003)

(3) An employer at a mine with only a primary access must ensure that no building is erected within 30 m of the centre of the primary access except a hoist house, portal house, or shaft house that is constructed of material with at least a 1 hour fire-resistance rating.

This subsection addresses the construction of surface buildings near an access. The subsection does not require the structural supports for a shaft itself to be constructed of fire-resistant material. (October 29, 2003)

(4) An employer must ensure that no flammable material, except for the fuel in the tanks of motor vehicles temporarily parked in or traveling through the area, is kept within 30 m of the centre of a primary access or auxiliary access.

(5) Despite subsection (4), flammable material may be temporarily stored in a temporary fire-proof storage receptacle while awaiting transport underground.

(6) Subsection (7) does not apply to an active mine that exists on the date these regulations come into force.

(7) An employer must ensure that a steam boiler or internal combustion engine is not constructed, maintained, or stored

(a) within 15 m of a hoist; or

(b) within 30 m of the centre of the primary access or an auxiliary access.

(8) If a hoist is located over a shaft, an employer must ensure that the supporting and enclosing structures that cover the prime mover or engine of the hoist, including the headframe, are constructed of non-combustible material.

(9) If a hoist is not located over a shaft, an employer must ensure that the supporting and enclosing structures that cover the prime mover or engine of the hoist, including the headframe, have a fire-resistance rating of at least 1 hour.

(10) An employer must ensure that no flammable material is stored in a shafthead building or portal house.

(11) An employer must ensure that no flammable material is stored or used within 15 m of the fan drive room.

(12) An employer must ensure that no combustible or flammable material is stored in any building or structure that contains a main fan, booster fan or auxiliary fan.

Mine air heating system

163 (1) If a system for heating the air underground at a mine is provided, an employer must ensure that the mine air heating system is designed by an engineer.

(2) An employer must ensure that the components of a mine air heating system are constructed, operated, inspected, and maintained so as to minimize the risk of fire or explosion and in accordance with the manufacturer's specifications or specifications certified by the engineer who designed the system.

(3) An employer must designate a competent person to inspect the mine air heating system and ensure that the person designated inspects the mine air heating system at the frequency recommended by the manufacturer or by the engineer who designed it.

(4) An employer must ensure that a record is kept of inspections, service, maintenance and tests of a mine air heating system and its components for as long as the mine is in operation.

(5) An employer must ensure that flammable material to be burned as fuel in a mine air heating system is piped into and kept in a

storage area, so that any leakage will not accumulate on the surface or enter the underground.

(6) An employer must ensure that no solid fuel is used in a mine air heating system.

Fire-extinguishing equipment

164 (1) An employer must provide adequate fire-extinguishing equipment

- at a working face in a coal mine;
- at the location of an engine or electric motor in a coal mine;

(c) at the location of a fixed electrical installation underground that is a possible fire hazard;

d) in or about a shafthead building or portal house;

(e) underground at every shaft station, lunchroom, fueling station, service garage, diesel fuel transfer system, crusher station, pump station, battery charging station, refuge station, tipple and conveyor;

(f) on mobile equipment underground, which must be a minimum of 2 class "B" fire-extinguishers of a minimum size of 9 kg each if the mobile equipment is used for transporting explosives;

(g) in accordance with subsection 155(1) at a place underground where a fire is started;

(h) at a loading face where explosives are kept;

(i) at a location where hot work is carried out in accordance with Sections 160 and 161; and

(j) at a place underground where a fire hazard might be created by a means of producing heat or fire and that is designated as a fire hazard area in accordance with clause 157(3)(e);

(k) at an area underground in which flammable material is kept in a storage area, except an area where blocks of wood used to reinforce supports are stored; and

(l) in a building or structure on the surface

(i) that is located above or adjacent to an opening to the underground, or

(ii) in which a fire might endanger the primary access or an auxiliary access to the underground.

(2) An employer must ensure that the location of fire-extinguishing equipment required underground by subsection (1) is such that the direction of the ventilating air will not prevent or hamper the effective use of the fire-extinguishing equipment during a fire.

(3) An employer must ensure that portable fire-extinguishing equipment meets or exceeds the requirements of NFPA Standard 10-2002, "Standard for Portable Fire Extinguishers", 2002 edition.

Fire-suppression systems

165 (1) An employer must provide an adequate fire-suppression system

A fire-suppression system means a device for suppressing fire that automatically activates to suppress a fire in a particular place. The fire suppression system should prevent the spread and duration of a fire and hence the generation of smoke and fumes which can travel down stream in the ventilation circuit. (December 9, 2003)

(a) at an area underground in which flammable material is kept in a storage area, except an area where blocks of wood used to reinforce supports are stored;

Considering that clause 165(1)(h) deals with the storage of flammable liquids underground, and section 178 bans the storage of flammable gasses underground, clause 165(1)(a) only applies to the storage of flammable solids other than wood and coal. (January 10, 2005)

(b) at every mechanical shop, electrical shop and garage where vehicles are serviced that is underground and is not constructed of non-combustible material;

(c) at a coal mine, at every conveyor drive;

(d) at every fueling station, diesel fuel transfer system and battery charging station that is underground;

(e) on a main fan and any associated drive room, if the main fan is underground;

(f) at a coal mine, on a booster fan and any associated drive room;

(g) on equipment that is underground and that contains more than 100 L of flammable liquid;

(h) at an area in which 500 L or more of flammable liquid is kept in a storage area; and

The 500 L is the total amount of flammable liquid stored in the area. It does not matter if the 500 L is in one large container or a series of smaller ones. (January 10, 2005)

(i) in a building or structure on the surface

  (i) located above or adjacent to an opening to the underground, or

  (ii) in which a fire might endanger the primary access or an auxiliary access to the underground.

Inspection and maintenance of fire-extinguishing equipment and fire-suppression system

166 An employer must ensure that

(a) inspection and maintenance of fire-extinguishing equipment and fire-suppression systems are carried out in accordance with the manufacturer's specifications at least once a month by a competent person designated by the employer;

(b) the results of the inspection and maintenance referred to in clause (a) are recorded; and

(c) the manager of a coal mine is informed of the results of the inspection and maintenance referred to in clause (a) and the manager notifies the committee or representative, if any, of the results.

Water supply system for extinguishing fires

167 (1) An employer must ensure that there is a water supply system at the mine that supplies water to underground workings in the event of a fire.

(2) An employer at a coal mine must ensure that the water supply system required by subsection (1)

(a) has a supply of at least 600 000 L of water at all times;

(b) has an adequate number of hydrants and fire hoses; and

(c) is capable of supplying water to all conveyors that are in operation.

(3) An employer must ensure that the total static plus kinematic pressure of the water in the system required by subsection (1), measured at a nozzle with a 16 mm diameter that is attached to a hydrant at on the circuit, is least 350 kPa when 2 of the hydrants on the circuit are discharging water at a rate of 3.3 L per second each.

(4) An employer at a coal mine must ensure that a competent person, at least once a month, tests the flow quantity and pressure of water at the hydrants shown on the plan showing the location of all fire-related equipment required by clause 125(2)(i).

(5) An employer at a coal mine must ensure that the manager is informed of the results of the tests conducted under subsection (4) and that the manager notifies the committee or representative, if any, of the results.

(6) This Section does not apply at a non-coal mine if the material being mined is hydroscopic.

Liquid flammable materials underground

168 (1) An employer must ensure that liquid flammable materials

(a) when being used underground, are transported and stored in portable containers that conform to CSA Standard B376-M1980 (R1998), "Portable Containers for Gasoline and Other Petroleum Fuels"; and

(b) are kept in a storage area underground in a quantity no greater than,

(i) in the case of a liquid flammable material with a flashpoint below 52° C, the quantity required for the current day's work,

(ii) in the case of other liquid flammable material with a flashpoint of 52° C or above, other than diesel fuel, the quantity required for 30 days work, and

(iii) in the case of diesel fuel, the quantity required for 7 days work.

(2) An employer must ensure that liquid flammable material that is spilled underground is

(a) immediately taken up with sand or equally adequate material and put in a fireproof container; and

(b) removed from the underground at suitable intervals, as long as it is completely removed within 24 hours following the spill.

(3) An employer must ensure that empty containers for flammable material are removed from the underground regularly and as soon as reasonably practicable.

Design of underground enclosures and shelters

169 (1) An employer must ensure that an area underground that is used to enclose equipment or machinery, or to provide shelter, including a service garage, fueling station, fuel storage area and an oil and grease storage area,

(a) is designed, constructed, maintained and protected to prevent the inadvertent entry of an uncontrolled vehicle;

(b) has an adequate means of entry and exit appropriate for the conditions and purpose of the area; and

(c) is adequately ventilated to suit the purpose of the area.

(2) An employer must ensure that underground diesel fuel storage areas and underground oil and grease storage areas are separate from underground service garages.

Fire prevention for underground service areas

170 (1) An employer must ensure that an underground service garage, underground fueling station, underground diesel fuel storage area and underground oil or grease storage area

(a) is located so that a fire or explosion inside the area would have a minimal effect on any active workings, shafts, magazines, refuge stations or installations, or on the ability of persons to exit the mine;

(b) if required to have a fire-suppression system under Section 165, is provided with a means for manually activating the fire-suppression system from several locations inside and at least 1 location outside the entrance;

- has a floor constructed of non-combustible materials;
- has a floor without service pits; and

(e) is provided with means for containing spills of diesel fuel, oil or grease.

(2) An employer at a coal mine must ensure that when the fire-suppression system referred to in clause (1)(b) is activated, an alarm is automatically given at locations at which persons are present on the surface and underground who are able to summon further assistance.

Fire prevention for underground fueling stations

171 (1) An employer must ensure that a fueling station

(a) is separate from a service garage;

(b) is totally enclosed and equipped with a self-closing door of non-combustible construction;

(c) is constructed of non-combustible materials; and

(d) incorporates a sill or curb to contain spilled fluids, if the diesel fuel is not stored in a double-walled diesel fuel storage tank.

(2) An employer must clearly label a mobile diesel fuel storage tank, with "No Smoking" signs.

(3) An employer must ensure that diesel fuel tanks are filled only at mobile or fixed fueling stations permitted by the manager and certified as adequate by an engineer.

(4) An employer must ensure that a mobile fueling station conforms with NFPA standard NFPA 385, "Standard for Tank Vehicles for Flammable and Combustible Liquids", 2000 edition.

Diesel fuel transfer system

172 (1) An employer must ensure that a diesel fuel transfer system is designed, constructed and operated so that only a pre-set quantity of diesel fuel can be transferred at one time, and that this quantity is less than 90% of the available storage capacity of the receiving tank at the time of the transfer.

(2) An employer must ensure that a diesel fuel transfer system

(a) has a sensing device that will stop the flow of diesel fuel at the sending tank when the receiving tank reaches 90% of it's available storage capacity; or

(b) is monitored during a transfer by one person at the sending tank and one person at the receiving tank who have sufficient communication between them so that the flow of diesel fuel can be stopped at any time.

(3) If there a diesel fuel pipeline is installed in a shaft, an employer must ensure that no person is permitted to transfer diesel fuel during hoisting operations.

(4) An employer must ensure a competent person designated by the employer

(a) regularly inspect and maintain the diesel fuel transfer systems; and

(b) record the results of the inspection and maintenance.

(5) An employer must develop, and an engineer must certify in writing as adequate a procedure for the a diesel fuel transfer system that includes

(a) instructions on the operation, maintenance, and inspection of the diesel fuel transfer system; and

(b) the method of fire-fighting to be used in the event of a fire in the diesel fuel transfer system.

Diesel fuel pipelines

173 An employer must ensure that a diesel fuel pipeline serving the underground

(a) is constructed, operated, inspected, and maintained, in accordance with

(i) the manufacturer's specifications, or

(ii) if there are no manufacturer's specifications, an engineer's specifications;

(b) is constructed to minimize the risk of damage and supported so as to avoid dips and sags;

(c) is constructed of wrought iron, steel pipe or material of equivalent strength, durability, corrosion resistance and fire resistance;

(d) is certified as adequate by an engineer;

(e) has leakproof joints, with any sealants or gaskets used conforming with ULC standard ULC/ORD-C107.19-1992, "Secondary Containment of Underground Piping For Flammable and Combustible Liquids";

(f) is pressure tested before initial use to 345 kPa above atmospheric pressure, or 1.5 times the maximum working pressure, whichever is greater, and the pipeline retains the pressure for at least 2 hours after the source of pressure has been removed;

(g) does not pass through a service garage, switch room, magazine underground, refuge station or first-aid station;

(h) is drained empty after each diesel fuel transfer is completed; and

(i) is clearly identified as a diesel fuel pipeline.

Diesel fuel oil storage tanks

174 (1) An employer must ensure that a diesel fuel storage tank

(a) subject to subsection (2), is designed and constructed in accordance with

(i) for a non-coal mine, NFPA Standard 122, "Standard for Fire Prevention and Control in Underground Metal and Nonmetal Mines", 2000 edition;

(ii) for a coal mine, NFPA Standard 123, "Standard for Fire Prevention and Control in Underground Bituminous Coal Mines", 1999 edition;

(b) is operated, inspected, and maintained in accordance with

(i) the manufacturer's specifications, or

(ii) if there are no manufacturer's specifications, an engineer's specifications;

(c) is certified as adequate by an engineer for its location and use;

(d) is supported and anchored to prevent excessive stress concentration on a supporting portion of the tank and located to minimize the risk of damage to the tank;

(e) has controls clearly identified that will stop the flow of diesel fuel;

(f) has vent pipes of sufficient size, located so that vapours are directed away from any place where they could be a hazard to health or safety;

(g) has a means of accurately determining the amount of diesel fuel it contains; and

(h) if it is not a double-walled tank, is surrounded by a dike or curb capable of containing 110 % of the tank's capacity.

(2) If a diesel fuel storage tank is replaced on or after the date these regulations come into force, an employer must replace it with a double-walled diesel fuel storage tank that is designed and fabricated in accordance with

(a) ULC standard ULC-S601-00, "Standard for Shop Fabricated Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids", 3rd edition; or

(b) ULC standard ULC-S630-00, "Standard for Shop Fabricated Steel Aboveground Vertical Tanks For Flammable and Combustible Liquids".

Fire prevention for battery charging stations

175 An employer at a coal mine must ensure that a battery charging station underground is vented

directly into the return airway.

Fire prevention for stationary diesel engines

176 An employer must ensure that a stationary diesel engine underground is

- (a) supported on a non-combustible base; and
- (b) provided with a thermal sensor that automatically stops the engine if overheating occurs.

Fire prevention for air compressors

177 An employer must ensure that an air compressor underground that is driven by a machine or other device is

- (a) designed, constructed, inspected, and maintained so as to minimize the risk of fire or explosion that could result from an accumulation of carbonaceous deposits in the air discharge lines; and
- (b) provided with a shutdown device that will prevent the operation of the compressor if
  - (i) the temperature of the discharged air, cooling water, cooling air or lubricant exceeds the safe operating range specified by the manufacturer, or
  - (ii) the flow or pressure of the compressor lubricant is below the safe operating range specified by the manufacturer.

Use of propane or other similar fuel underground

178 (1) An employer must ensure that no propane or similar flammable material or other fuel that is heavier than air when in a gaseous state is permitted underground except while being

used for burning or cutting.

(2) An employer must ensure that the containers for the propane that is being used underground conforms with Canadian Gas Association standard CAN/CGA-B149.2-00, "Propane Storage and Handling Code" and are no larger than 10 kg in capacity.

(3) If propane or similar flammable material or other fuel that is heavier than air when in a gaseous state is being used underground, an employer must ensure that the containers for the fuel are no larger than 10 kg each in capacity.

Fire doors

179 (1) An employer must ensure that fire doors are installed underground

(a) to enable the prompt closing off of the primary access and any auxiliary access from the workings;

(b) if reasonably practicable, to close off shops and service garages; and

(c) to close off an area in which more than 500 L of flammable material is kept in a storage area;

(2) An employer must ensure that fire doors that are installed underground are

(a) constructed of non-combustible materials; and

(b) adequately maintained and kept clear of all obstructions so that they are readily usable at all times.

(3) Despite clause (1)(a), fire doors are not required to close off the primary access and the auxiliary access if the employer develops a procedure to enable the prompt closing off of the primary access and the auxiliary access from the workings and the procedure provides equivalent protection.

(4) An employer at a non-coal mine must ensure that a competent person designated by the employer

(a) carries out an inspection and necessary maintenance of the fire doors at least once a month; and

(b) records the results of the inspection and any maintenance performed.

Procedures required for minimizing danger from sulphide dust explosions

180 If the sulphur content of the material being mined exceeds 20% by mass of material being tested, an employer must develop procedures that are certified as adequate by an engineer for minimizing the danger from a sulphide dust explosion, including

(a) provision for ensuring that all persons are removed to a safe place prior to blasting, taking into consideration the mine layout and the ventilation circuits; and

(b) provision for ensuring that all active workings within 30 m of a blasting site are, to the degree practicable, kept free of an accumulation of sulphide dust prior to blasting

and any additional reasonable precautions for reducing the risk of a sulphide dust explosion or lessening the consequences if there is an explosion.

Mine explosion suppression procedure required in a coal mine

181 (1) An employer at a coal mine must develop a mine explosion suppression procedure certified as adequate by an engineer for the suppression of explosions of coal dust and flammable gas underground that is suitable for the conditions and mining system of the mine.

(2) An employer must ensure that a device required by the mine explosion suppression

procedure developed under subsection (1) is

(a) designed in accordance with generally accepted engineering principles;

(b) certified as adequate by an engineer;

(c) constructed, operated, and maintained as designed; and

(d) inspected weekly.

(3) An employer must ensure that the inspection required by clause (2)(d) is recorded and that the record is kept for 2 years after the date of the last entry.

(4) An employer must review the mine explosion suppression procedure required by subsection (1) at least once a year and revise it as necessary.

Coal dust minimization procedure required in coal mine

182 (1) An employer at a coal mine must develop and file with the Director a coal dust minimization procedure that includes

(a) instructions for minimizing the generation of coal dust;

(b) instructions for removing coal dust and other flammable materials from the mine to the extent reasonably practicable;

(c) a description of the equipment and method for stone-dusting and the required frequency of stone-dusting;

(d) the location and quantity of stone-dust stored in the mine for purposes of an emergency.

(e) instructions for the sampling and analysis of dust from underground locations including travelways, that

(i) is suitable to the conditions and mining system of the mine,

(ii) indicates locations and frequency

of sampling,

(iii) lists equipment, methods, and testing protocols to be used, and

- is certified as adequate by an engineer; and

(f) details of how the employer will implement the requirements of Section 184.

(2) An employer must review the instructions required by clause (1)(e) for the sampling and analysis of dust underground at least once a year, and revise it as necessary.

(3) An employer at a coal mine must ensure that

(a) at least once every week, representative samples of dust are taken, in accordance with the instructions for sampling required by clause (1)(e), from the floor, roof and ribs along the length of each travelway underground and analysed to determine the percentage of flammable material;

(b) the person who takes the samples referred to in clause (a) makes a plan that identifies the location in the travelway where each sample was taken; and

(c) the manager receives the results of the analysis not later than 1 week after the date on which the sample was taken.

(4) An officer may order an employer at a coal mine to take the samples described in clause(3)(a) more frequently than required in the clause.

(5) An employer must

(a) keep a record of the results of the analysis required by clause (3)(a) along with the plan required in clause (3)(b) for a period of at least 2 years after the date that the area of the underground mine from which the sample was taken is no longer active; and

(b) notify to the committee or representative, if any, the results of the analysis required by clause (3)(a), as required by subsection 27(4).

Reducing coal dust accumulation in a coal mine

183 (1) Where reasonably practicable, an employer must ensure that every area underground in a coal mine is kept free of accumulations of coal dust.

(2) An employer must ensure that dry areas underground in which coal dust is produced are systematically wetted down so as to render any coal dust incombustible.

(3) To reduce coal dust underground, an employer must ensure that

(a) all coal-cutting heads are equipped with water-spray jets of sufficient number and size to ensure that the areas of the coal face being worked are kept in a damp so as to render any coal dust incombustible;

(b) all transfer points where coal is moved from one mode of transfer to another, including all dumping stations, are equipped with water-spray jets sufficient to render any coal dust incombustible; and

(c) mined coal is kept wet during handling underground.

(4) An employer must ensure that a competent person designated by the employer

(a) regularly inspects and maintains the water-spray jets required clauses (3)(a) and (b); and

(b) records the results of the inspection and maintenance.

Use of stone-dust in a coal mine

184 (1) An employer at a coal mine must ensure that every travelway underground is treated with incombustible stone-dust so that the dust on

the floor, roof and ribs of the travelway contains

(a) if the concentration of flammable gas in the air in the travelway does not exceed 1% by volume in the air being tested, no more than 25% coal dust by mass of dust being tested; and

(b) if the concentration of flammable gas in the air in the roadway exceeds 1% by volume in the air being tested, no more than 20% of coal dust by mass of dust being tested.

(2) An employer must ensure that, prior to an area being stone-dusted, it is free and clear of coal dust.

(3) An employer must ensure that the incombustible stone-dust used in a coal mine contains

(a) at least 70% by mass of material that is capable, when dry, of passing through a sieve of 75 µm;

(b) less than 1% by mass of flammable material as determined by a test of the flammable material content of the stone dust as a whole; and

(c) less than 1% by mass of free crystalline silica.

(4) An employer must ensure that at least 20 bags of dry incombustible stone-dust weighing at least 25 kg each, are stored underground in a coal mine

(a) within 150 m of each working face in the intake airway;

(b) within 40 m of each working face in the return airway;

(c) at every 60 m along a conveyor belt; and

(d) at each

(i) shop,

(ii) flammable material storage area,

(iii) conveyor belt drive area,

(iv) conveyor belt loading area,

(v) ventilation door or curtain,

(vi) location where electrical mine switch gear and transformers are installed,

(vii) crusher station,

(viii) pump station,

(ix) shaft station,

(x) tipple,

(xi) service garage,

(xii) fueling station,

and any additional location where a fire hazard could exist.

Stone-dusting at working face

185 (1) In addition to the requirements of Section 184, an employer must ensure that

(a) all underground areas of a coal mine that are more than 12 m from a working face are stone-dusted; and

(b) all cross-cuts within 12 m from a working face are stone-dusted.

(2) Despite subsection (1) an employer must ensure that all areas in a blasting area are stone-dusted as close as reasonably practicable to the sites of the charges and prior to initiating the blast at the working face.

Water for dust control

186 (1) At any location where material is drilled, blasted, loaded or transported, an employer must ensure that

(a) clean water under pressure is available for dust control purposes during drilling; and

(b) broken material is thoroughly wetted

  (i) during drilling,

  (ii) after blasting, and

  (iii) when the material is being loaded or scraped.

(2) Subsection (1) does not apply at a non-coal mine if the material being mined is hydroscopic.

(3) Despite subsection (1), if it is not reasonably practical to control dust in the manner for a level of protection required by (1) an employer must develop and implement a procedure that provides protection that is equal to or greater than the level of protection that would be provided by compliance with subsection (1).

The employer is permitted to implement alternate measures for the suppression of dust which provide for an adequate means of dust control. (December 9, 2003)

Part 6 - Electrical and Mechanical Work

Definitions

187 In this Part,

(a) "chief coal mine electrician" means a competent person who

  (i) meets the qualifications set out in Section 467, and

  (ii) is designated by the employer as the chief coal mine electrician;

(b) "chief coal mine mechanic" means a competent person who

  (i) meets the qualifications set out in Section 468, and

  (ii) is designated by the employer as the chief coal mine mechanic;

(c) "coal mine electrician" means a competent person who

  (i) meets the qualifications set out in Section 467, and

  (ii) is designated by the employer as a coal mine electrician; and

(d) "coal mine mechanic" means a competent person who

  (i) meets the qualifications set out in Section 468, and

  (ii) is designated by employer as a coal mine mechanic;

(e) "electrical trades person" means a person who holds a certificate of qualification under the *Apprenticeship and Trades Qualifications Act* or its regulations as an industrial electrician, construction electrician, or mine electrician;

(f) "electrical work" means the construction, inspection, testing, calibrating, maintenance, or alteration of an electrical installation that is or will be located underground;

(g) "mechanical work" means the construction, inspection, testing, calibrating, maintenance, or alteration of mechanical equipment that is or will be located underground; and

(h) "mechanical trades person" means a person who holds a certificate of qualification under the *Apprenticeship and Trades Qualifications Act* or its regulations as an electric motor system technician, automotive service technician, heavy duty equipment technician, industrial instrument mechanic, industrial mechanic (millwright), mine mechanic, truck and transport mechanic, and farm equipment mechanic.

Designation of zones for use of electrical installations underground at coal mine

188 (1) A manager must designate the entire underground of a coal mine as a gassy zone.

(2) Despite subsection (1), for the purposes of using an electrical installation underground, the manager of a coal mine may, in accordance with the written opinion of the ventilation engineer, designate an area of the underground as a non-gassy zone.

(3) An employer must ensure that no area of a coal mine is designated as a non-gassy zone if

(a) the air supplied to the area

(i) has ventilated a working face,

(ii) has a level of flammable gas equal to or greater than 0.5% by volume in the air being tested,

(iii) has the potential to reach a level of flammable gas equal to or greater than the concentration specified in subclause (ii) should the ventilation system break down for a period of 4 hours or more, or

(iv) is subject to unintentional or unplanned ventilation reversal or re-circulation of the airflow in the ventilation system; or

(b) the area is

(i) within 100 m of a working face,

(ii) supplied with air by an auxiliary fan, or

(iii) past the last open crosscut of a working face.

(4) An employer must ensure that a designation by the manager of a non-gassy zone pursuant to subsection (2), is in accordance with a written report of the ventilation engineer, who must, in preparing the report,

(a) consult with the committee or representative, if any;

(b) verify that the area to be designated meets the requirements of subsection (3);

(c) consider the ventilation system as shown by the ventilation plan required by Section 53;

(d) consider the potential methane concentrations should the ventilation system break down for a period of 4 hours or more; and

(e) consider all reports of flammable gas in or near the area to be designated.

(5) The report referred to in subsection (4) must be certified by the ventilation engineer and countersigned by the manager.

(6) The manager must show the zones designated under this Section on a plan of the coal mine and must post a current copy of the plan in a conspicuous place at the coal mine.

Standards for electrical installations

189 (1) An employer must ensure that an electrical

installation is designed, constructed, operated, inspected, maintained and dismantled in an adequate manner that complies with this Part and the requirements of one of the following standards:

(a) CSA standard C22.1-02 "The Canadian Electrical Code Part 2 (19th Edition), Safety Standard for Electrical Installations"; or

(b) CSA standard CAN/CSA-M421-00, "Use of Electricity in Mines".

(2) Despite subsection (1), an employer may use electrical equipment that complies with another standard if the employer files with the Director a report prepared in writing by an engineer that

(a) establishes that the other standard forms part of a government's regulatory regime for the safe use of electricity at a mine, or is relied upon by officials with legislated responsibility for administering such a regime; and

(b) includes the opinion of the engineer that the other standard provides for a level of safety that equals or exceeds the level of safety that would be provided by compliance with the comparable standard referred to in clause (1)(a) or (b).

(3) The report required by subsection (2) must compare on a clause-by-clause basis the relevant provisions of the applicable CSA standard referred to in subsection (1) with

(a) the standard contemplated in subsection (2), documenting for each clause in the CSA standard the number of any corresponding provision in the other standard, and the opinion of the engineer that the 2 provisions are equivalent or, if not, which is the more stringent, and the importance or impact of the difference; or

(b) the features of the specific type of electrical equipment approved under the standard contemplated in subsection (2) and the context in which it is proposed

This clause contains a mistake. The correct reference is CSA standard C22.2-02 "The Canadian Electrical Code Part 2 (19th Edition), Safety Standard for Electrical Installations" (October 29, 2003) be installed, documenting the opinion of the engineer as to whether the feature meets or exceeds, or fails to meet, the requirement of every relevant clause in the applicable CSA standard referred to in subsection (1) and, for every clause that the equipment fails to meet, the importance or impact of the failure.

(4) An employer at a coal mine must ensure that an engineer's report required by subsection (2) is

(a) certified by the engineer;

(b) countersigned by the manager; and

(c) filed with the Director at least 30 days before equipment that does not comply with the applicable standard referred to in subsection (1) is energized.

Interpretation of standard

190 (1) For the purpose of interpreting the standard referred to in clause 189(1)(a),

(a) "authorized person" means a competent person designated by an employer and "appointed person" has a similar meaning;

(b) "special permission" in clause 5.4.2 of the standard means permission granted by the Director under Section 83 of the Act for a deviation from the prohibition on the use of switchgear with liquids having a lower flashpoint; and

(c) "approved" means meeting the requirements of Sections 189 and 191.

Electrical installations in a gassy zone of coal mine

191 An employer at a coal mine must ensure that an electrical installation, except for a cap lamp referred to in subsection 86(2), used in a gassy zone is certified as flameproof or intrinsically safe by Natural Resources Canada or an agency acceptable to the Director.

Electrical installations in a non-gassy zone of coal mine

192 (1) An employer must ensure that an electrical installation used in a non-gassy zone in a coal mine

- (a) is certified as intrinsically safe or flameproof by Natural Resources Canada or an agency acceptable to the Director; or
- (b) if it is not certified as intrinsically safe or flameproof in accordance with clause (a)
  - (i) has been approved in writing by an engineer in accordance Section 193 within the last 12 months immediately preceding the date of its first use,
  - (ii) is designed so that
    - (A) the entry of coal dust is restricted, or if coal dust entry is reasonably foreseeable, the electrical installation does not produce an internal surface temperature hot enough to ignite coal dust,
    - (B) the electrical installation does not produce an external surface temperature hot enough to ignite coal dust, and
    - (C) the electrical installation is stationary while energized,
  - (iii) is installed so as to be stationary while energized,
  - (iv) is clearly identified by
    - (A) a bright distinguishing color that does not appear on any other equipment underground, and that is identified on a sign at each entrance to the mine as

indicating that the equipment is neither intrinsically safe nor flameproof, and

(B) a legible and conspicuous notice fixed to the installation that states: "Caution - This equipment is neither intrinsically safe nor flameproof. It is unsafe for use in gassy zone",

(v) remains underground only for so long as specified in writing by an engineer as reasonably necessary for its intended use, and

(vi) is constructed, operated, inspected, maintained, and dismantled in accordance with

(A) the manufacturer's specifications, and

(B) any report in relation to the electrical installation prepared by an engineer for the purposes of subsection 193.

(2) Before installing equipment that is neither intrinsically safe nor flameproof in an area designated as a non-gassy zone, an employer must ensure that the ventilation engineer reviews the report on the designation of a non-gassy zone required by subsection 188(4), and

(a) either modifies or accepts the report; and

(b) signs the report indicating their decision under clause (a) and any modification made.

Approval of equipment as part of electrical installation in coal mine

193 An employer at a coal mine must ensure that, before approving equipment under 192(1)(b)(i), an engineer prepares a report that

(a) indicates the standard referred to in Section 189 with which the equipment complies:

(b) verifies that the equipment complies with the requirements of Section 192;

(c) indicates any requirements in addition to or augmenting the requirements of Section 192 that the engineer considers prudent in the circumstances; and

(d) takes into account proposed work procedures, supervision, employee training, stone-dusting and fire-extinguishing equipment access, preparedness, and any other matter that the engineer, following consultation with the committee or representative, if any, considers it advisable to address,

and indicates any additional precautionary measures and work procedures that, in the engineer's opinion, are necessary conditions of approval.

Procedure required for electrical installations

194 (1) Before electricity is supplied to or used in an electrical installation underground, an employer must ensure that procedures, including plans, conforming to the applicable standard referred to in Section 189 are prepared and certified as adequate by an engineer for the installation, operation, inspection, maintenance and dismantling of the electrical installation.

(2) The procedures and plans required by subsection (1) must be updated as soon as reasonably practicable to reflect alterations or repairs that change the components of the electrical installation.

Approval of electrical installation at coal mine

195 (1) An employer must ensure that electricity is not be supplied to a coal mine or a part of it, until an engineer and a coal mine electrician have approved in writing as adequate each type of electrical installation, and the approval has been countersigned by the

manager.

(2) Before an electrical installation containing equipment that is neither intrinsically safe nor flameproof is energized, an employer must prepare a report based upon a physical and personal examination of the electrical installation by the employer verifying the engineer's report required by Section 193.

Certificate required to be kept at mine

196 (1) For every electrical installation used in a hazardous location as defined by CSA standard C22.1-02, "Canadian Electrical Code Part 1 (19th edition), Safety Standard for Electrical Installations" an employer at a non-coal mine must keep a copy at the mine site of any certification

(a) related to the use of that electrical installation in a hazardous location;

(b) related to the intrinsic safety of the electrical installation; and

(c) attesting that the electrical installation is flameproof.

(2) For every electrical installation in use underground at the mine an employer at a coal mine must keep a copy at the mine site of any certification

(a) related to the use of the electrical installation;

(b) related to the intrinsic safety of the electrical installation; and

(c) attesting that the electrical installation is flameproof.

Electrical work

197 (1) An employer at a non-coal mine must ensure that only a competent person who is an electrical trades person is permitted to carry out electrical work.

(2) An employer at a coal mine must ensure that no person is permitted to carry out electrical work other than

(a) a coal mine electrician; or

(b) an electrical trades person, while being mentioned, as approved by the Director, and working under the constant, close personal supervision of a coal mine electrician.

Supervision of electrical work

198 An employer must ensure that

(a) at a non-coal mine, a competent person who is designated by the employer; or

(b) at a coal mine, the chief coal mine electrician

is responsible for electrical installations and supervises electrical work.

Record and communication of electrical work

199 (1) An employer at a coal mine must ensure that a person who conducts electrical work records the work conducted, and an employer must keep the record for 2 years.

(2) An employer must ensure that if the electrical work is conducted by an electrical trades person, a coal mine electrician who supervises the work countersign a record made by the electrical trades person pursuant to subsection (1).

(3) An employer must ensure that a competent person summarizes the records of electrical work at a mine required by subsection (1) and submit the summary for review and countersignature at least once a week

(a) at a coal mine, to the chief coal mine electrician; or

(b) at a non-coal mine, to the designated competent person referred to in clause 198(a).

Mechanical Work

200 (1) An employer at a non-coal mine must ensure that only a competent person who is a mechanical trades person is permitted to carry out mechanical work.

(2) An employer at a coal mine must ensure that no person is permitted to carry out mechanical work other than

(a) a coal mine mechanic; or

(b) an mechanical trades person, while being mentioned, as approved by the Director, and working under the constant, close personal supervision of a coal mine mechanic.

Supervision of mechanical work

201 An employer must ensure that

(a) at a non-coal mine, a competent person who is designated by the employer; or

(b) at a coal mine, a chief coal mine mechanic;

is responsible for mechanical equipment and supervises mechanical work.

Record and communication of mechanical inspections at coal mine

202 (1) An employer at a coal mine must ensure that a person who conducts mechanical work records the work conducted, and the employer must keep the record for two years.

(2) An employer must ensure that if the mechanical work is conducted by a mechanical trades person, a coal mine mechanic who supervises the work

countersigns the record made pursuant to subsection (1).

(3) An employer must ensure that a competent person summarizes the records required under subsection (1) and submits the summary at least once a week to the chief coal mine mechanic for review and countersignature.

Part 7 - Ventilation

Ventilation engineer

203 An employer at a coal mine must designate a ventilation engineer to oversee the design and operation of the ventilation system in accordance with these regulations and generally accepted engineering principles.

Installation and maintenance of ventilation system

204 (1) An employer must ensure that a ventilation system

(a) is constructed, operated, inspected, and maintained in accordance with the manufacturer's specifications;

(b) supplies ventilating air to underground areas where persons are working or traveling or might work or travel; and

(c) is adequate to ensure the health and safety of persons underground.

(2) An employer at a coal mine must ensure that each split is provided with an adequate amount of intake air.

(3) An employer must ensure that auxiliary ventilation is not used to exhaust air from a working face, unless there is mechanically supplied air to the working face of a volume that equals or exceeds the volume of the exhausted air as indicated on the mine ventilation plan.

(4) An employer must ensure that intake air to the working face of a mine does not exceed 0.5% by volume of flammable gas.

(5) An employer at a coal mine must ensure that

(a) the air velocity of a ventilation system is sufficient to prevent the layering of methane; and

(b) the average air velocity across a cross-section of a ventilation pathway is never less than 20 m / min.

(6) An employer at a coal mine must ensure that no person is permitted to alter, change or interfere with any aspect of the ventilation system without the approval of the ventilation engineer.

(7) An employer must ensure that a deficiency in any part of the ventilation system that significantly affects air quality in an area of the mine is repaired without delay or that the area is evacuated.

Air quality monitoring program

205 (1) An employer must develop an adequate air quality monitoring program for the mine to monitor non-diesel contaminants in the air underground.

(2) The air quality monitoring program required by subsection (1) must

(a) be developed by a competent person and certified as adequate by

(i) an engineer,

(ii) an occupational hygienist registered with the Canadian Registration Board of Occupational Hygienists, or

(iii) an industrial hygienist certified by the American Board of Industrial Hygiene;

(b) identify sampling procedures using plans and instructions, and detailing the instruments to be used for the procedures; and

(c) identify

(i) the non-diesel contaminants to be monitored, and

(ii) the frequency for monitoring the contaminants identified under sub-clause (1).

Record of monitoring

206 (1) An employer must record the results of the monitoring performed under the air quality monitoring program required by Section 205.

(2) The record required by subsection (1) is exempt from the 2-year retention period required by clause 9(1)(c).

Routing of air at coal mine

207 An employer at a coal mine must, where reasonably practicable,

(a) route the return air from a production area directly to the primary return airway;

(b) ensure that intake air does not come into contact with stagnant water, unsealed abandoned workings or other places likely to contaminate the air; and

(c) ensure that abandoned workings are either sealed or ventilated directly to the return airways.

Separation between primary intake and primary return airways in a coal mine

208 (1) An employer at a coal mine must ensure that the strata between the primary intake airway and the primary return airway is at least 30 m thick and sufficiently solid to minimize, to the degree reasonably practicable, the transfer of air between the airways.

(2) Subsection (1) does not apply if structures are installed to minimize the transfer of air between the primary intake airway and return intake airway for ventilation purposes.

Ventilating air quality and quantity tests

209 (1) An employer must ensure that a competent person conducts tests, in accordance with generally accepted engineering principles, to

determine the quantity and quality of circulating ventilating air, including for flammable and non-flammable gases

(a) at least once a month,

  (i) in the primary intake airway and primary return airway,

  (ii) in the intake airways and return airways of an area ventilated by a split,

  (iii) in the intake airways and return airways of an area of a working, and

  (iv) at a coal mine, within 90 m of the first working face, in the intake airway of a split;

(b) at least once a week, at the working face in an active working; and

(c) at a frequency and location specified by the employer or an officer.

(2) An employer at a coal mine must ensure that the tests conducted under subsection (1) for

(a) concentrations of non-flammable gas are taken in the general body of air underground; and

(b) concentrations of flammable gas are taken within 30 cm of the roof, rib, face or floor, underground.

(3) An employer must ensure that any electrical equipment used to

(a) test air quality;

(b) measure air velocity; or

(c) calculate the volumetric flow rate of air

is certified as intrinsically safe by an appropriate certifying agency such as CANMET, MSHA or CSA.

(4) An employer must ensure that when a person is calculating the quantity of ventilating air required by these regulations to be provided

The intent is that not only the assessment of air contaminants be conducted, but also the assessment of the ventilation system on an on-going basis. (December 9, 2003) to the underground, a person must not consider the exhausted air from a machine powered by compressed air.

Recording of test results for air quality and quantity

210 (1) An employer must ensure that

(a) results of tests conducted under Section 209 are recorded; and

(b) the Director is notified in writing as soon as reasonably practicable of both the test results and the employer's plan of action if

(i) the results of the quantitative air flow tests are more than 15% below the level, or lower limit of a range of levels, specified in the ventilation plan required by Section 53,

(ii) the results of the qualitative air flow tests exceed twice the occupational exposure limit, or

(iii) methane levels reach or exceed 2% by volume in the air being tested.

(2) An employer at a coal mine must file a copy of a record made under clause (1)(a) with the Director once a month.

(3) The employer shall ensure that a record made under clause (1)(a) is kept for 2 years after the area of the mine referred to the record is abandoned.

Report on ventilation system

211 (1) An employer must ensure that, at intervals not exceeding one month, a competent person prepares a report of

(a) the condition of the devices in the ventilation system that are used to move or direct air; and

The intent of this Section is one of responsibility and accountability. The requirement permits the manager to designate another person to review the documents but the required manager's signature signifies the manager's acceptance of the work and is required to achieve compliance with this regulation. (December 9, 2003)

(b) the test results recorded under Section 210,

and that the manager countersigns the report.

(2) The report required by subsection (1) is exempt from the 2-year retention period required by clause 9(1)(c).

Prohibiting entry into unventilated working

212 (1) An employer must barricade the entry to an area of a mine that is not ventilated to prevent inadvertent entry and post an adequate number of signs in conspicuous places warning that entry is prohibited.

(2) An employer must ensure that the air in an unventilated area of a mine is tested before a person, other than a person testing the air, enters or is permitted to enter the area.

(3) A person who enters an unventilated area of a mine to test the air is not permitted to enter the area unless an employer ensures that the person is given and complies with procedures, including plans and instructions, necessary for the person's protection that are countersigned by the manager.

(4) The procedures referred to in subsection (3) must include

(a) the method of communication among persons in the unventilated area of the mine and between those persons and an attended place outside that area of the mine;

(b) emergency response instructions, including a list of the equipment that must be made available for use in an emergency situation; and

(c) a list of any hazard or potential hazard to a person entering the unventilated area of the mine.

Ventilation doors or curtains

213 (1) An employer must provide, construct, inspect, test and maintain adequate ventilation doors or curtains between the intake airways and return airways in every travelway that is a connection between

(a) a primary intake airway and a primary return airway; or

(b) an airway that, with respect to active workings, is an intake airway and a return airway in which a diesel-engine is operated.

(2) An employer must ensure that a ventilation door or curtain is capable of being easily passed through by a mine worker.

(3) A mine worker must ensure that a ventilation door or curtain is closed immediately after the last mine worker passes through.

(4) Except when necessary for the passage of a vehicle and only for the duration necessary for the passage of the vehicle, no person is permitted to fix open a ventilation door or curtain without the authorization of the person responsible for the ventilation system.

(5) If a ventilation door or curtain is required under these regulations at a coal mine, an employer must ensure that at least 2 ventilation doors or curtains are installed that function as an airlock.

(6) If there is more than 1 ventilation door or curtain installed in a single travelway, an employer must ensure that they are spaced so that whenever 1 is open at least 1 other can be shut.

Air flow to active working where diesel engine operating

214 An employer at a non-coal mine must ensure that the air flow to an active working where a diesel engine is operating reduces the concentration of airborne respirable combustible dust to prevent the exposure of a person to a time-weighted average concentration of more than 1.5 mg per ^{M3} of air averaged over an 8-hour period.

Testing of air where diesel engine operating

215 (1) An employer must ensure that a competent person tests, with respect to each diesel engine operating underground,

(a) at least once a week, the carbon monoxide concentration, nitric oxide concentration and nitrogen dioxide concentration in the air

(i) adjacent to and downwind of the exhaust of the engine, and

(ii) in the operator's breathing zone;

(b) at least once a month, the carbon dioxide concentration in the air adjacent to and downwind of the exhaust of the engine;

(c) at least once a month, the formaldehyde concentration and the sulphur dioxide concentration in the air

(i) adjacent to and downwind of the exhaust of the engine, and

(ii) in the operator's breathing zone;

(d) for a minimum of 4 hours at least every 6 months in a non-coal mine, the airborne respirable combustible dust concentration in the air

(i) adjacent to and downwind of the exhaust of the engine, and

(ii) in the operator's breathing zone.

(2) An operator of a diesel engine, a person working in the immediate area of a diesel engine, or a member of the committee or representative, if any, may request that an employer test for carbon monoxide concentration, nitrogen dioxide concentration and nitric oxide concentration in the air adjacent to or downwind of the exhaust of a diesel engine operating underground.

This sub-section requires occupational exposure information to the contaminant identified.

(3) Upon receiving a request made under subsection (2) an employer must immediately comply with the request and ensure that a

competent person conducts the test.

(4) A competent person performing a test under subsection (1) or (3) must record and sign the following information for each diesel engine tested:

(a) date and location of test;

(b) machine type, number and engine serial number;

(c) flow of ventilating air measured in cubic meters per second;

(d) carbon monoxide concentration, nitric oxide concentration, and nitrogen dioxide concentration measured in p.m. in the air

(i) adjacent to and downwind of exhaust, and

(ii) in the operator's breathing zone;

(e) carbon dioxide concentration, formaldehyde concentration, and sulphur dioxide concentration, measured in p.m.; and

(f) respirable combustible dust concentration, measured in milligrams per cubic meter of air.

Adequate supply of uncontaminated air for hoist operator and cage tender

216 An employer must ensure that the hoist operator and the cage tender in an underground or tower-mounted hoist room are provided with an adequate supply of uncontaminated air by

(a) means of an enclosed booth with uncontaminated air being blown into the booth; or

(b) access in the hoist room to one or more self-contained breathing apparatus, together with a spare fully-charged cylinder of compressed air of at least 8.5 m^3 capacity.

Adjusting and altering regulators

217 No person is permitted to adjust, alter or interfere with a regulator, or any other device designed to affect air flow or air quality, unless they

- (a) have authorization
  - (i) in writing from the manager or a person designated by the manager in a non-coal mine, or
  - (ii) from the ventilation engineer at a coal mine; and
- (b) notify the supervisor for the area affected by the adjustment, alteration, or interference.

Design of fans and associated equipment

218 (1) An employer must ensure that fans used to ventilate a mine and fan housings are made of non-combustible materials.

(2) An employer must ensure that all fans used to ventilate a mine and associated equipment are designed so that routine inspection and maintenance can be carried out without stopping the fan or interfering with the air supplied by the fan.

(3) An employer must ensure, to the degree reasonably practicable, that a main fan, booster fan or auxiliary fan is prevented from recirculating ventilating air.

(4) An employer must ensure that the pipes, ducking and line brattice used for conveying ventilating air are made of materials that do not support progressive combustion upon removal of the source of heat.

Main fan in a coal mine

219 (1) An employer at a coal mine must ensure that a main fan is

(a) located on the surface;

(b) offset at least 5 m from the nearest side of any opening to the underground, except as provided in subsection (2);

(c) provided with a pressure-release door or other device that is designed to be opened by the force of an explosion and that is in a direct line with any possible forces of an explosion; and

(d) operated from a dedicated power circuit.

(2) Despite clause (1)(b), an employer may locate a main fan directly in front of, or over, an opening to the underground if

(a) the opening is not in a direct line with possible air blasts from the underground resulting from an explosion; and

(b) there is another opening to the underground that is

(i) in a direct line with possible air blasts from the underground resulting from an explosion,

(ii) equipped with an explosion door, and

(iii) at least 5 m but not more than 30 m from the opening where the main fan is to be located.

(3) An employer at a coal mine must ensure that the air flow from a main fan is reversible.

(4) An employer at a coal mine must ensure that there is a standby power supply available at the mine for the main fan.

Booster fans

220 (1) An employer at a coal mine must not install a booster fan until an engineer carries out a pressure quantity survey, countersigned by the manager, to determine

(a) the necessity for the booster fan;

(b) the expected performance range of the booster fan while in operation; and

(c) an adequate location for the booster fan and the fan's effect on the rest of the ventilation network.

(2) An employer must ensure that a booster fan is located so that if it stops the free passage of ventilating air to or from a main fan is restricted as little as reasonably practicable.

Controls for fans must be remote from fans

221 An employer must ensure that the controls of a main fan or booster fan are placed at protected locations that are sufficiently remote from the locations of the respective fans.

Inspection of fans and associated equipment

222 (1) An employer at a non-coal mine must ensure that a competent person inspects a main fan, booster fan and associated equipment in service at least once a week.

(2) An employer at a coal mine must ensure that a competent person inspects a main fan that has a capacity of more than 50 hp or booster fan that has a capacity of more than 50 hp and associated equipment in service for overheating of bearings or fan failure,

(a) at least every 30 minutes, unless the fan is continuously monitored for overheating of bearings or fan failure; or

(b) at least every 8 hours if the fan is continuously monitored for overheating of bearings or fan failure.

(3) The competent person who inspects the fan and equipment under subsection (1) or (2) must prepare a report of the inspection.

Reversing air flow of fans

223 A manager may give permission, in writing, to reverse the air flow of a main fan, booster fan or auxiliary fan, but the manager must not permit the

reversal if there is a person underground

(a) whose location is unknown; or

(b) who is located in a place where the health or safety of the person would be compromised if the air flow of the respective fan were reversed.

Response to fan failure at a non-coal mine

224 (1) In this Section, "air contaminant" means gas, vapours, mist, fume, smoke, dust or another airborne substance hazardous to the health or safety of a person.

(2) If a fan fails at a non-coal mine, and an employer fails to determine that the air quality or quantity in the area serviced by the fan remains adequate, the employer must ensure that

(a) all persons in the area affected by the failure, except those working to repair the fan, withdraw to a safe place;

(b) diesel-powered equipment and any other equipment in the area affected by the failure, or processes that produce air contaminants are shut down or removed from the area, and remains shut down or removed from the area until adequate ventilation is restored; and

(c) a competent person conducts a test of the air quality and quantity in the general body of air after the fan is repaired.

(3) No person, other than a person who is working to repair a failed fan, is permitted to enter the area affected by the failure until a competent person has ascertained that adequate air quality and quantity have been restored.

(4) Despite clause (2)(b), diesel-powered equipment may be used to transport persons directly and immediately to a safe place under the direction of a supervisor responsible for the area.

Response to fan failure at a coal mine

225 (1) If a fan fails at a coal mine, an employer must ensure that

(a) all persons in the area affected by the failure, except those working to repair the fan, withdraw to a safe place;

(b) every electrical installation in the area affected by the failure is de-energized and remains de-energized until the ventilation is restored; and

(c) diesel-powered equipment in the area affected by the failure is shut down and remains off until the ventilation is restored.

(2) At a coal mine, if a fan that fails remains stopped for more than 30 minutes, an employer must report the following to the Director as soon as reasonably practicable:

(a) the reason for the failure;

(b) the time the fan stopped;

(c) the duration of the failure; and

(d) any remedial action taken.

(3) Once a fan in a coal mine is repaired, an employer at a coal mine must ensure that adequate ventilation is restored and that a person who has been designated as a mine examiner, underground manager, or supervisor tests for flammable gas in the area that was affected by the failed fan and in other areas where flammable gas is likely to accumulate, and determines that the areas are safe for re-entry.

(4) An employer must ensure that no person enter an area affected by a failed fan until the area is considered to be safe for re-entry in accordance with subsection (2).

(5) Despite clause (1)(c), diesel-powered equipment may be used to transport persons directly and immediately to a safe place under the direction of a supervisor responsible for the area as long as the methane gas concentration in the area

affected by the failed fan does not exceed 1.25% by volume in the air being tested.

Procedures for auxiliary ventilation in coal mine

226 (1) An employer at a coal mine must ensure that a competent person develops procedures, certified by a ventilation engineer for

(a) the installation and use of an auxiliary ventilation;

(b) the removal of flammable gas from active workings;

(c) any changes to the ventilation procedures that were in place prior to the introduction of the auxiliary ventilation.

(2) An employer must post in a conspicuous place on the surface a copy of the procedures required by subsection (1).

Auxiliary ventilation at coal mine

227 (1) An employer at a coal mine must provide auxiliary ventilation to

(a) an active working that advances more than 5 m from the primary intake airway; and

(b) a raise that advances more than 5 m from the primary intake airway, and must locate the auxiliary ventilation controls outside of the raise.

(2) If an auxiliary fan stops at a coal mine, no person is permitted to restart the auxiliary fan unless a competent person

(a) inspects the area of the auxiliary fan and the area that is serviced by the auxiliary fan and tests for flammable gas in both areas; and

(b) informs the person that it is safe to restart the auxiliary fan.

Auxiliary ventilation at non-coal mine

228 An employer at a non-coal mine must provide auxiliary ventilation to

- (a) an active working that
  - (i) advances more than 30 m; or
  - (ii) such other distance from the primary intake airway that provides ventilation that is approved as adequate by an engineer; and
- (b) a raise that advances more than 10 m from the primary intake airway and shall locate the auxiliary ventilation controls outside of the raise.

Whether compressed air permitted at mine

229 If it is not reasonably practicable to use an auxiliary fan in a non-coal mine, an employer may provide adequate compressed air in a pipeline for auxiliary ventilation.

230 An employer at a coal mine must ensure that compressed air, including air provided by an air mover, is not used for ventilation purposes.

Part 8 - Monitoring Flammable Gas

Definition

231 In this Part, "remote monitoring" means monitoring by means of a signal that is sent to and monitored by an appropriate computer located remotely from the flammable-gas monitor.

Monitoring of air at coal mine

232 (1) An employer at a coal mine must continuously monitor and record

(a) the temperature and barometric pressure on the surface at the mine; and

(b) the air velocity and flammable gas and carbon monoxide concentrations in air of the primary return airway;

(c) differential pressure between primary intake airways and primary return airways.

(2) An employer must ensure that the information referred to in subsection (1) is monitored by and recorded on a device that allows the current information to be instantly accessible by the mine manager or designated competent person at all times when persons are underground at the mine.

(3) An employer must ensure that the device required by subsection (2) is interconnected with warning devices that are located so that all persons who might be affected are made aware of the activation of the warning devices.

(4) An employer must ensure that a warning device required by subsection (3)

(a) gives adequate warning on the surface and underground when the barometric pressure falls by more than 2 ka in 30 minutes;

(b) gives adequate warnings underground when

(i) flammable gas at any sensor reaches or exceeds 0.25% by volume in the air being tested, and using a different warning, again at 0.5% by volume in the air being tested, or

(ii) power to a sensor is interrupted.

(5) An employer at a coal mine must ensure that the main fan and each booster fan, are equipped with a remote monitoring device that continuously records the operational effectiveness of the fan, including differential pressure, amperage, and air flow.

(6) An employer at a coal mine must ensure that every main fan is equipped with an audible alarm that sounds automatically if the fan stops or the air flow through the fan decreases by more than 20% from its expected value.

(7) An employer must maintain the information recorded under subsections (2) and (5) for 5 years.

Barometer and thermometer required in coal mine

233 An employer at a coal mine must ensure that a barometer and thermometer are placed in a conspicuous place on the surface, and that the temperature, the barometric pressure and the trend are posted at the beginning of each shift in a conspicuous place near the entrance to the underground.

Flammable gas monitors on equipment in coal mine

234 (1) An employer at a coal mine must ensure that a flammable-gas monitor is installed

(a) on every coal or stone-cutting machine;

(b) on all machinery for installing rockholes;

(c) on any mobile equipment;

(d) on any electrically-powered locomotive travelling anywhere underground; and

(e) on all underground non-portable electrical installations that are not intrinsically safe or not flameproof.

(2) An employer at a coal mine must ensure that an operator of hand-held powered equipment uses a flammable-gas monitor in close proximity to the area in which the equipment is being operated.

(3) An employer must ensure that no person operates the equipment referred to in subsection (1) or (2) if the flammable-gas monitor is inoperative, out of calibration, or not constructed, operated, inspected, tested, calibrated, or maintained according to the manufacturer's specifications.

(4) An employer at a coal mine must ensure that every flammable-gas monitor that is installed for the purpose of monitoring flammable gas concentrations at or near specific pieces of equipment or electrical installations

(a) automatically de-energizes the equipment or electrical installation when power to one of it's sensors is interrupted; and

(b) has its sensors positioned at locations that provide for the most effective measurement of flammable gas.

(5) Despite subsection (4), an employer must ensure that when power to a sensor on a flammable-gas monitor interlocked with a fan is interrupted,

(a) an audible and visual alarm sounds; and

(b) the fan does not automatically de-energize.

(6) An employer must ensure that a flammable-gas monitor required by subsection (1)

(a) gives adequate visual warning when the concentration of flammable gas reaches or exceeds

(i) in a gassy zone, 0.5% by volume in the air being tested, and using a different visual warning, again when flammable gas reaches or exceeds 1% by volume in the air being tested, or

(ii) in a non-gassy zone, 0.25% by volume in the air being tested, and using a different visual warning, again when flammable gas reaches or exceeds 0.5% by volume in the air being tested; and

(b) automatically de-energizes the monitored equipment when the concentration of flammable gas reaches or exceeds

(i) in a gassy zone, 1.25% by volume in the air being tested, or

(ii) in a non-gassy zone, 0.5% by volume in the air being tested.

Flammable gas monitoring where electrical installation operating in return airway in coal mine

235 (1) An employer at a coal mine must ensure that a flammable gas monitor is installed to continuously monitor the air where an electrical installation, other than intrinsically safe equipment and cap lamps, is being operated in a return airway.

(2) An employer must ensure that the flammable gas monitor referred to in subsection (1) automatically de-energizes the electrical installation in that area of the mine when the concentration of flammable gas reaches or exceeds 1.25% by volume in the air being tested.

Flammable gas monitoring at longwall airways in coal mine

236 (1) An employer at a coal mine must ensure that a flammable-gas monitor is installed to continuously monitor the air in

(a) an airway at the intake and return ends of a longwall working face or panel; and

(b) a return airway from a longwall panel.

(2) An employer at a coal mine must ensure that a flammable-gas monitors required by subsection (1) automatically de-energize all electrical installations in a return airway, except cap lamps and flammable-gas monitors

(a) when the concentration of flammable gas reaches or exceeds 1.25% by volume in the air being tested; or

(b) when power to a sensor is interrupted.

(3) An employer at a coal mine must ensure a flammable gas monitor required under subsection (1) that displays the concentration of flammable gas

(a) at a location on the surface by remote monitoring, is capable of recalling and displaying the concentrations recorded during at least the previous 24 hours; and

(b) at a location underground, is be capable of recalling and displaying the concentrations recorded during at least the previous 2 hours.

Flammable gas monitoring for switchgear electrical installation at longwall working face in coal mine

237 (1) An employer at a coal mine must ensure that a flammable gas monitor is installed to continuously monitor the air on the intake air side of a switchgear electrical installation that provides power to equipment on a longwall working face.

(2) An employer must ensure that a flammable gas monitor required by subsection (1) automatically de-energizes a switchgear electrical installation when the concentration of flammable gas reaches or exceeds 0.5% by volume in the air being tested.

Flammable gas monitoring at auxiliary fan in coal mine

238 (1) An employer at a coal mine must ensure that a flammable gas monitor is installed to continuously monitor the air on the intake air side of an auxiliary fan that is supplied in part by air already used to ventilate a working face.

(2) An employer must ensure that the flammable-gas monitor required by subsection (1) automatically de-energizes the equipment at the working face serviced by an auxiliary fan when the concentration of flammable gas reaches or exceeds 0.5% by volume in the air being tested.

Flammable gas monitoring for non-gassy zone in coal mine

239 (1) An employer at a coal mine must ensure that a flammable gas monitor is installed to continuously monitor the air on the intake air side of every area designated as a non-gassy zone, except where the intake air side is the surface mine opening.

(2) An employer must ensure that a flammable-gas monitor required by subsection (1)

(a) provides a visible and audible warning when the flammable gas concentration in the air supply of the non-gassy zone reaches or exceeds 0.25% by volume in the air being tested; and

(b) automatically de-energizes all electrical installations in the non-gassy zone that are not intrinsically safe or not flameproof when

(i) a flammable gas concentration in the air supply of the non-gassy zone reaches or exceeds 0.5% by volume in the air being tested, or

(ii) power to its sensor is interrupted.

Notification of committee or representative of high flammable gas concentration in coal mine

240 If monitored equipment at a coal mine has been de-energized as a result of the concentration of flammable gas detected by flammable gas monitoring an employer must inform the committee or representative, if any, of it by telephone.

When flammable gas reaches or exceeds 0.5% in coal mine where source of ignition present

241 At a coal mine, if the concentration of flammable gas reaches or exceeds 0.5% by volume in the air being tested at the primary intake airway where an electrical installation or a diesel engine is operated or a source of ignition is present, an employer must ensure that a competent person, immediately before the installation or engine is started,

(a) tests for flammable gas with a flammable gas monitor adjacent to the installation or engine; and

(b) adjusts the ventilation until the flammable gas is below 0.5% by volume in the air being tested.

When flammable gas reaches or exceeds 1.25% in coal mine

242 (1) If the concentration of flammable gas in an area of a coal mine reaches or exceeds 1.25% by volume in the air being tested, an employer must ensure that

(a) every electrical installation, except for cap lamps and flammable-gas monitors, in the area affected by the gas concentration is de-energized; and

(b) diesel-powered equipment in the area affected by the gas concentration is shut off or immediately removed from the area.

(2) An employer must ensure that the diesel-powered equipment that is shut off or removed as required by subsection (1), remains off or is not brought back into the area and the electrical installation remains de-energized until a competent person

(a) tests for flammable gas in the general body of air adjacent to the diesel-powered equipment or the electrical installation, and the test shows the flammable gas concentration is below 1% by volume in the air being tested; and

(b) determines that it is safe to re-energize the electrical installation, and turn on or bring back into the area the diesel-powered equipment.

(3) An employer must ensure that a written report of an occurrence of a flammable gas concentration reaching or exceeding 1.25% by volume in the air being tested at a coal mine is made to the first-line supervisor for the area where the gas concentration occurred.

When flammable gas reaches or exceeds 2.0% in coal mine

243 (1) If the concentration of flammable gas in an area underground in a coal mine reaches or exceeds 2.0% by volume in the air being tested an employer must ensure that the supervisor for the area where the concentration occurs

(a) immediately causes all persons to be withdrawn to a safe place;

(b) informs the coal mine underground manager without delay;

(c) insofar as it is possible to do so without undue risk, examines or has a competent person examine the condition of the affected area and determines the measures necessary to render it safe and make a record of the examination; and

(d) records information about the flammable gas concentration including the location of measurements, time of measurements, and environmental or operating conditions that did or could have affected the measurements, at the time of measurements, and provides the information to the coal mine underground manager.

(2) Except for the purpose of saving life or rendering the area safe, no person is permitted to enter an area evacuated under clause (1)(a) until

(a) the concentration of flammable gas is less than 2.0% by volume in the air being tested; and

(b) the coal mine underground manager decides it is safe for entry.

(3) An employer must provide the committee or representatives, if any, with a copy of the records required by subclauses (1)(c) and (d).

Highest reading in flammable gas tests used as reading

244 Whenever a test for flammable gas is required under these regulations in the general body of air, the person making the test must test all areas of a total cross section of the general body of air and the highest reading obtained instantaneously at any location, including the roof, must be used as the reading.

Gas measuring devices supplied to testers at coal mine

245 An employer at a coal mine must provide every person who is required to test for flammable gas under these regulations with

(a) a hand-held flammable-gas meters that is capable of testing the concentration of flammable gas

(i) in the range of 0% to 5% by volume in the air being tested, and

(ii) in layers, cracks, crevices and other locations that are normally beyond arm's reach;

(b) a hand-held carbon monoxide meters for testing the concentration of carbon monoxide in the air in ppm in the range of 0 to 50 ppm; and

(c) a meters for testing the concentration of oxygen in the air.

Testing and calibrating flammable gas monitors and portable meters at coal mine

246 (1) An employer at a coal mine must ensure that a facility exists on the surface to test and calibrate all portable flammable-gas monitors and hand-held flammable-gas meters, carbon monoxide meters and oxygen meters according to the manufacturers' specifications.

(2) An employer at a coal mine must ensure that suitable portable calibration equipment is available to test and calibrate all flammable-gas monitors and meters and oxygen meters fixed at a location underground, according to the manufacturers' specifications.

Calibration of meters

247 (1) An employer must establish a written schedule of calibration for any meters required to be used pursuant to these regulations that requires calibrations at equal or greater frequencies than the frequencies indicated in the manufacturer's specifications.

(2) An employer must ensure that the meters calibration schedule required by subsection (1) is posted in close proximity to the place where the hand-held meters are stored and the non-portable meters are located.

(3) An employer at a coal mine must ensure that flammable-gas meters are calibrated at least once a week.

(4) An employer must ensure that after a portable meters is calibrated, a calibration sticker is attached to the portable meters that

(a) shows the date when the next calibration of the meters is due; and

(b) is signed or initialled by the person who conducted the calibration.

Only one coal cutting machine in ventilation split

248 An employer at a coal mine must ensure that no more than 1 machine is cutting coal in any ventilation split at any one time.

Stoppings in coal mine

249 (1) An employer must seal permanently abandoned workings in a coal mine with permanent stoppings that are designed by an engineer to minimize the transfer of gas or water over the area of the stopping and are certified by an engineer as adequately constructed to achieve their design intent.

(2) An employer must ensure that the engineering design and certification required by subsection (1) are countersigned by the manager.

(3) An employer must ensure that the space in front of all stoppings is kept free of obstructions.

(4) An employer must develop procedures that are certified as adequate by an engineer for monitoring

(a) the atmosphere behind a stopping for flammable and noxious gases; and

(b) water pressure behind the stopping.

Methane drainage system required at coal mine

250 (1) At a coal mine, unless an employer establishes that it is not reasonably practicable, the employer must ensure that a methane drainage system is provided that is

(a) designed in accordance with generally accepted engineering principles, and

(b) certified as adequate by an engineer.

(2) The methane drainage system must be

(a) constructed, operated, calibrated, and maintained as designed;

(b) inspected weekly; and

(c) suitable to the conditions and system of the mine for removal of flammable gas.

(3) An employer must maintain a record of the inspections required by clause (2)(b).

(4) An employer must ensure that to prevent access to an area containing a methane drainage pipe

(a) a fence which extends from the floor to the roof is installed at a distance of at least 3 m from any part of a methane drainage system discharge pipe; and

(b) adequate warning signs are posted at conspicuous places around the area

and that the fence and signs are adequately maintained.

(5) An employer must develop a procedure for methane drainage before, during and after mining, that must be certified as adequate by an engineer.

Testing and measurement for methane and oxygen in coal mine

251 (1) An employer at a coal mine must ensure that a meter with attachments or equipment capable of testing and measuring flammable gas and oxygen at the roof and roof cavities is available at every active working face.

(2) An employer must designate competent persons, and ensure that at every active working face there is at least 1 competent person,

(a) to have custody and control of the meter referred to in subsection (1);

(b) capable of performing the testing and measuring referred to in subsection (1); and

(c) who must interpret the results of the testing and measuring referred to in subsection (1).

Methane drainage system discharging flammable gas reaching or exceeding 2.0% in coal mine

252 If flammable gas is discharged from a methane drainage system at a coal mine and the concentration of flammable gas in the area reaches or exceeds 2.0% by volume in the air being tested, an employer must ensure that, to prevent access to the area

(a) a fence that extends from the floor to the roof is installed; and

(b) adequate warning signs are posted at conspicuous places

and that the fence and warning signs are adequately maintained.

When flammable gas reaches or exceeds 0.25% in a non-coal mine

253 (1) In a non-coal mine, if the concentration of flammable gas measured in the general body of air in an active working reaches or exceeds 0.25% by volume in the air being tested, an employer must ensure that

(a) all activity in the area ceases and all persons in the area withdraw to a safe place, except for activity related to and persons working to, lower the concentration of flammable gas; and

(b) all sources of ignition in the area, including electrical installations that are not intrinsically safe or not flameproof, except cap lamps, mechanical equipment, torch cutting equipment, a spark or open flame and smoking materials, are immediately de-energized or extinguished.

(2) An employer must ensure that a person exempted under clause (1)(a) who is working to lower the concentration of flammable gas is

(a) adequately trained in the hazards associated with flammable gas; and

(b) provided with adequate equipment, including adequate respiratory protection, and a flammable-gas monitor.

(3) Activity may resume and persons may return to an active working evacuated under subsection (1), after

(a) a competent person tests the general body of air in the area once every hour for at least 24 hours and determines that the concentration of flammable gas is under 0.25% by volume in the air being tested for 24 consecutive readings; or

(b) remote monitoring of the general body of air underground in the area is carried out and the concentration of flammable gas is constantly under 0.25% by volume in the air being tested for 24 consecutive hours.

Part 9 - Mechanical Equipment and Travelways

Definitions

254 In this Part

(a) “material car” means a mine car used to transport materials only;

(b) “personnel carrier” means mobile equipment that is used to transport persons;

(c) “rail-bound” means capable of being operated only on fixed rails, or a track, beam or trolley; and

(d) “safety station” means a place in a travelway to which a person can move to be out of the path of a moving hazard.

Identification number

255 An employer must ensure that all mobile equipment and all diesel-powered equipment in use at a mine is marked with a clearly visible, unique identification number on the outside of the mobile equipment or diesel-powered equipment.

Testing, maintenance and inspection of conveyors

256 (1) An employer must ensure that a conveyor belt is slip-proof and conforms to CSA Standard CAN/CSA-M422-M87 (R1995), "Fire Performance and Antistatic Requirements for Conveyor Belting".

(2) A competent person must inspect the external parts of belt lines and conveyors in use at least once every 24 hours of operation, and make a record of the inspection.

Standards for construction of diesel-powered equipment

257 (1) In this Section, "CAR" means the Code of Federal Regulations published in the Federal Register by the executive departments and agencies of the government of the United States.

(2) An employer must ensure that diesel-powered equipment that is used underground on or after the date these regulations come into force is constructed and certified by the certifying body, if the service is available, or an engineer if the service is not available, to conform with the following standards, as applicable:

(a) MSHA regulation 30 CAR (2002), applicable to the type of equipment and the type of mine in which the equipment is used;

(b) CSA Standard CAN/CSA-M424.2-M90 (R1999), "Non-Rail-Bound Diesel-Powered Machines for Use in Non-Gassy Underground Mines"; and

(c) CSA Standard CAN/CSA-M424.1-88 (R2000), "Flameproof Non-rail-bound Diesel-Powered Machines for Use in Gassy Underground Coal Mines".

(3) An employer must ensure that the brakes on diesel-powered mobile equipment that is used on or after the date these regulations come into force, conform to CSA Standard CAN/CSA-M424.3-M90 (R2001), "Braking Performance - Rubber-Tired, Self-Propelled Underground Mining Machines".

(4) Despite subsection (2), at a non-coal mine, diesel-powered mobile equipment may conform to a standard other than one referred to in subsection (2), if an engineer certifies in writing that the other standard provides for a level of safety that equals or exceeds the level of safety that would be provided by compliance with the applicable standards referred to in subsection (2).

Maintenance of diesel-powered equipment

258 (1) An employer must ensure that diesel-powered equipment used underground on or after the date these regulations come into force

(a) is maintained in adequate condition or removed from service;

(b) is maintained and repaired only by a competent person designated by the mine manager;

(c) is inspected weekly by a competent person in accordance with the manufacturers' specifications, and that a record of each inspection is made and kept.

(2) An employer must ensure that diesel-powered equipment is visually examined by the operator before it is operated and that the operator promptly reports equipment defects to their supervisor.

No sparks or flames from diesel-powered equipment engine

259 An employer must ensure that the engine of diesel-powered equipment used underground is constructed and maintained to prevent emission of sparks or flames.

Fuel for diesel-powered equipment

260 (1) An employer must ensure that all systems for the handling, transfer, storage and dispensing of fuel are designed according to generally accepted engineering principles and subjected to a fire risk assessment before first use.

(2) An employer must ensure that a fire risk assessment required by subsection (1) is conducted in accordance with the following standards:

(a) for a non-coal mine, NFPA Standard 122, "Standard for Fire Prevention and Control in Underground Metal and

Nonmetal Mines", 2000 edition; and

(b) for a coal mine, NFPA Standard 123, "Standard for Fire Prevention and Control in Underground Bituminous Coal Mines", 1999 edition.

(3) An employer must develop, in consultation with the committee, or representative, if any, appropriate safeguards and procedures for the safe handling, transfer, storage, and dispensing underground of fuel for diesel-powered equipment.

(4) An employer must ensure that fuel used in diesel-powered equipment used underground complies with CGS Standard CAN/CGS-3.517-2000, "Automotive Low Suffer Diesel Fuel".

(5) Despite subsection (4), if the ambient temperature in the area where the diesel fuel is being used or stored exceeds 30° C, the employer must ensure that

(a) the flash point of the diesel fuel is at least 10° C higher than the ambient temperature; and

(b) the diesel fuel complies with the CGS Standard CAN/CGS-3.16-99, "Mining Diesel Fuel, Special LS".

Carbon monoxide from diesel-powered equipment exhaust

261 (1) No person is permitted to operate diesel-powered equipment underground if the undiluted exhaust gases discharging from its engine while the engine is idling reach or exceed 1 200 p.m. by volume of carbon monoxide.

(2) An employer must ensure that tests are conducted on the engine exhaust of diesel-powered equipment used underground while the engine is idling to determine the carbon monoxide concentration of the undiluted exhaust gases discharging from the engine

(a) immediately after repairs to the engine or the exhaust system of the diesel-powered equipment; and

(b) when recommended by the manufacturer, or at least monthly, whichever is less frequent.

(3) An employer must maintain a record of the tests conducted under subsection (2), including

(a) the identification number required by Section 255 of the diesel-powered equipment;

(b) the date of the tests; and

(c) the results of the tests.

Remote-controlled equipment

262 (1) An employer must ensure that remote-controlled equipment

(a) has a selector device that makes it possible to choose either a manual or remote means of controlling the equipment;

(b) has a red emergency switch on the transmitter that, when pressed, stops the equipment as soon as reasonably practicable;

(c) that is mobile equipment,

  (i) is equipped so that if the remote-control system fails, the mobile equipment will be brought to an immediate stop,

  (ii) has a device that will stop the engine of the equipment and apply the brakes when the equipment reaches an inclination of 45° from the horizontal, and

  (iii) is used only

    (A) within the operator's sight, or

    (B) if a camera on board the equipment instantly transmits an image of the location of the equipment to a monitor seen by the operator.

(2) Despite clause (1)(c), the remote-controlled mobile equipment may be operated manually if

  (a) it is possible to do so; and

  (b) manual operation will not adversely affect the health and safety of the operator, or mine workers in close proximity to the operating equipment.

Procedures for remote-controlled equipment

263 An employer must develop procedures that ensure that

(a) there is no inadvertent or unpermitted start-up of remote-controlled equipment;

(b) a person in the area of remote-controlled equipment is protected from being struck by the equipment;

(c) a remote-control can only operate 1 unit of remote-controlled equipment at a time; and

(d) a person operates only 1 unit of remote-controlled mobile equipment at a time.

Remote-controlled equipment in contiguous mines

264 The managers of 2 contiguous mines must develop co-ordinated procedures that ensure that a remote-control device for equipment in one mine cannot operate remote-controlled equipment in the other mine.

Information recorded for each remote-control

265 (1) An employer must record the particulars of each remote-control device, including the

(a) brand;

(b) model;

(c) serial number;

(d) frequency used; and

(e) maintenance record.

(2) An employer must ensure that a person responsible for adjustments or maintenance to a remote-control device has signed the record required by subsection (1) for the device.

(3) An employer must keep a record required by subsection (1) for 2 years after the date the

remote-control device is no longer used in the mine.

Equipment for all personnel carriers

266 An employer must ensure that a personnel carrier has

(a) if it is diesel-powered, a shut-off valve, readily accessible to the operator in the fuel line to the engine from the fuel tank;

(b) if it includes an electric locomotive, an automatic shut-off switch constructed so that power to the motor can only be maintained by continuous pressure on the switch by the operator; and

(c) seats or benches that are adequately secured to the personnel carrier.

Design and equipment for rail-bound personnel carriers

267 (1) An employer must ensure that a rail-bound personnel carrier has

(a) an adequate lifting jack and bar that are secured or are carried in a tool compartment;

(b) its controls arranged so as to minimize the risk of them being unintentionally moved;

(c) if it is used on a gradient exceeding 4% averaged over any 100 m, an overspeed governor on one of the mine cars that will automatically activate in the event of a 20% overspeed; and

(d) if it is used in a slope where the incline exceeds 4% averaged over a distance of 100 m, a canopy.

(2) An employer must ensure that each mine car of a rail-bound personnel carrier that is used on a gradient exceeding 4% averaged over any 100 m interval, is equipped with brakes that

- (a) when activated, will activate the brakes on all other mine cars of the personnel carrier;
- (b) are activated when the overspeed governor referred to in clause (1)(c) is automatically activated;
- (c) are manually operable from any mine car;
- (d) are designed so that if any one component fails, it will not reduce the overall capability of the braking system;
- (e) as a unit, are capable of stopping and holding the carrier at the maximum gradient of the roadway at 20% overspeed; and
- (f) will activate whenever power or operating pressure to any part of the braking system of the carrier is interrupted.

(3) An employer must ensure that mine cars that are adjacent in a rail-bound personnel carrier are connected to each other by

- (a) couplings attached to the chassis of each mine car; and
- (b) if the carrier is used on a gradient exceeding 4% averaged over any 100 m, safety chains that are
  - (i) capable of holding at least 200% of the maximum drawbar load of the personnel carrier, and
  - (ii) slack during normal operation of the carrier.

(4) If a rail-bound personnel carrier is used on a gradient exceeding 4%, it must, for the purpose of coupling it with other mine cars, be equipped with

- (a) 3 continuous draw-bars made of steel; or
- (b) a single draw-bar composite of rolled steel sections and rolled steel plates.

(5) An employer must ensure that a rail-bound personnel carrier is capable of transporting an injured person on a stretcher.

Equipment for material cars

268 An employer must ensure that a material car or an adequate number of material cars of a rail-bound train that is used on a gradient exceeding 4% averaged over 100 m are each equipped with brakes that

(a) will stop the train in the event of a runaway;

(b) are activated when the overspeed governor referred to in clause 267(1)(c) is automatically activated in the event of a 20% overspeed;

(c) are manually operable; and

(d) are designed so that if any one component fails, it will not reduce the overall capability of the braking system.

Tackling equipment and construction of mine cars of rail-bound train

269 (1) An employer must ensure that the tackling equipment, including couplings, pins, safety chains, rope clamps and draw-bars, on a mine car of a rail-bound train that is used on a gradient exceeding 4%, averaged over any 100 m

(a) is made of steel that is certified by the manufacturer as not requiring heat treatment to remove stresses that occur as a result of use; and

(b) is not subjected to heat treatment.

(2) An employer must ensure that a safety chain referred to in subsection (1) connects 2 adjacent mine cars of a rail-bound train.

(3) No employer is permitted to use the tackling equipment referred to in subsection (1) on a mine car of a rail-bound train unless

(a) the equipment's design is tested by the manufacturer to withstand a proof load of 40% of its breaking strength load without any permanent stretch;

(b) the employer obtains a certificate as proof of the equipment passing the test referred to in clause (a) from the manufacturer; and

(c) the tackling equipment is legibly and permanently marked to identify it with the manufacturer's certificate.

Safety factors for tackling equipment

270 An employer must ensure that

(a) safety chains and safety ropes are designed, constructed and maintained at a safety factor of at least 2;

(b) a draw-bar that is made of rolled steel sections and plates is designed, constructed and maintained at a safety factor of at least 10; and

(c) tackling equipment, including couplings, pins, and rope clamps and draw-bars not covered by clause (b) are designed, constructed, and maintained at a safety factor of at least 6.

Fastening arrangement of mine cars on rail-bound train

271 (1) An employer must ensure that the first mine car of a rail-bound train is secured by a primary fastening arrangement that is

(a) a rope socket, in the case of a direct hoist rope system;

(b) a rope clamp, in the case of an endless hoist rope system;

(c) a coupling, in the case of any other rail-bound train, and is approved as adequate by an engineer.

(2) If a gradient exceeds 4% averaged over any 100 m, the first mine car of a rail-bound train on a direct hoist rope system must be secured, in addition to the primary fastening arrangement required in clause (1)(a), by a secondary fastening arrangement that is capable of holding at least 200% of the maximum tensile load of the train in the event of failure of the primary fastening arrangement.

Regular movement of clamps on endless hoist rope system

272 At least once every 3 months, an employer must ensure that

- (a) the position of the clamps that attach a train to the hoist rope on an endless hoist rope system are moved to a new point of attachment that is at a distance of at least the maximum length of the train; and
- (b) each movement of the position of the clamps made under clause (a) is made in the same direction along the hoist rope.

Certificate required for hoist-powered train

273 An employer must obtain a certificate from an engineer for a train defined in subclause 7(c1)(ii)

- (a) stating that the train is designed in accordance with generally accepted engineering principles; and
- (b) specifying the maximum load that can be adequately carried by the train taking into consideration the maximum load the mine hoisting plant is designed to carry and the limitations contained in the hoist certificate.

Working alongside mobile equipment

274 No person is permitted to work or travel alongside

operating mobile equipment if

(a) the location of the mobile equipment could hinder the person's escape if there is a rockfall; or

(b) there is a danger of the person being pinched between the mobile equipment and the rib.

Overhead clearance in travelway for mobile equipment

275 An employer must ensure that a minimum of 30 cm clearance is maintained between the highest point of a piece of mobile equipment and the lower of

(a) the roof of a travelway; and

(b) the bottom of an obstruction from the roof of a travelway.

Lateral clearances in travelway for non-rail-bound mobile equipment

276 (1) If a travelway is not used by pedestrians, the employer must ensure that there is at least 1.5 m lateral clearance in excess of the maximum width of the largest non-rail-bound mobile equipment between the equipment and any obstruction in the travelway.

(2) If a travelway is used by both non-rail-bound mobile equipment and pedestrians and has less than 2 m lateral clearance in excess of the maximum width of the largest non-rail-bound mobile equipment between the equipment and any obstruction in the travelway, the employer must install safety stations located not more than 30 m apart.

Lateral clearances in travelway for rail-bound mobile equipment

277 (1) An employer must ensure that a travelway that is used by both rail-bound mobile equipment and pedestrians has

(a) on one side of the travelway, at least 30 cm clearance between the rail-bound mobile equipment and any obstruction in the travelway; and

(b) on the side of the travelway opposite the side referred to in clause (a), a walkway that provides at least 60 cm clearance between the rail-bound mobile equipment and any obstruction in the travelway.

(2) An employer must ensure that if a travelway referred to in subsection (1) is also used as a pedestrian walkway, and the total clearance between any obstruction in the travelway and the rail-bound mobile equipment is less than 2 m, safety stations are installed along the walkway side of the travelway at intervals not exceeding

(a) in a coal mine,

(i) 50 m in a sloped area of a travelway, and

(ii) 100 m in a level area of a travelway; and

(b) in a non-coal mine, 30 m.

Safety stations

278 An employer must ensure that a safety station

(a) is plainly marked with a clearly visible, unique identification number;

(b) is clean and free of obstructions;

(c) if recessed in a travelway,

(i) is cut perpendicular to the travelway, and

(ii) is at least the following dimensions:

(A) 1 m in depth,

(B) 1.5 m in width, and

(C) 2 m in height or the height of the travelway, whichever is less; and

(d) that is a safety platform,

(i) is at least 1.7 m in depth and at least 1.2 m in width,

(ii) is easily accessible,

(iii) has guardrails to protect a person using from falling off, and

(iv) if it is placed over a conveyor, is at least 45 cm above the centre of the conveyor.

Procedures for the safe operation of mobile equipment

279 (1) An employer must develop procedures for the safe operation of mobile equipment that include

(a) the conditions under which persons may be transported using mobile equipment; and

(b) for each operator of mobile equipment, written instructions about

(i) loads, gradients, and speeds, including specifying the speed for mobile equipment transporting explosives,

(ii) rights-of-way, including specifying the right-of-way when the mobile equipment is transporting explosives,

and any additional matters necessary to ensure the safe operation of the mobile equipment.

(2) An employer must post, in a conspicuous place in each workplace where mobile equipment is operated, readily accessible to the operator and all other persons in the workplace, a notice showing

(a) the maximum load that may be carried by each piece of mobile equipment operated in the workplace; and

(b) the maximum speed at which each piece of mobile equipment operated in the workplace may travel under various load conditions.

Operator of mobile equipment

280 (1) An operator of mobile equipment must operate the equipment at speeds consistent with the conditions and type of equipment used and must control the equipment so that it can be stopped within the operator's sight distance.

(2) An operator must not put mobile equipment in operation unless the operator is satisfied it is in safe operating condition and the operator, immediately before moving the mobile equipment, inspects the immediate area over which the mobile equipment is to be moved, ensures that the road is clear and it is safe to proceed and

(a) has an unrestricted view of the area over which the mobile equipment is to be moved; or

(b) can receive signals from another person who has an unrestricted view of the area over which the mobile equipment is to be moved.

(3) An operator of rail-bound mobile equipment must sound a horn before moving the rail-bound mobile equipment.

(4) An operator must be in position at the controls at all times when operating mobile equipment on manual control.

(5) An operator of mobile equipment must use a device that warns pedestrians of the approaching equipment.

Securing of tools, equipment, and supplies on mobile equipment

281 Every person must ensure that tools, equipment, and supplies carried on mobile equipment are adequately secured.

Signaling and communication for remote-controlled rail-bound trains

282 An employer must provide a means of signaling and communication between all regular stopping places and the operator of a rail-bound train operated by remote-control in a travelway more than 30 m in length.

Disabled mobile equipment

283 An employer must ensure that an adequate warning is given of mobile equipment that is disabled or parked in the traveled portion of a travelway.

Preventing runaway mine cars

284 (1) Before a mine car is detached from its haulage rope or coupling and is parked on an inclined travelway, a person must secure it so that the mine car is not able to move.

(2) An employer must not permit a mine car to be moved without using mobile equipment or a hoist unless adequate control of the mine car is maintained.

Precautions for runaway mobile equipment

285 (1) An employer must ensure that, at the bottom of an incline there is a switch or arresting device that is designed, constructed, operated, inspected and maintained in accordance with generally accepted engineering principles, to stop a runaway mine car or train at least 30 m from the working face.

(2) An engineer must certify as adequate, and the manager must countersign, a design for a switch or arresting device required by subsection (1).

Maintenance of rails underground

286 (1) An employer must adequately construct, inspect and maintain mobile equipment rails in use underground.

(2) An employer must adequately construct, inspect and maintain switches, derails, stop blocks, sanding devices, frogs and other mobile equipment rail track safety equipment.

Restriction of persons on mobile equipment transporting explosives, etc

287 (1) An employer must ensure that if mobile equipment is transporting explosives, steel, timber or heavy equipment, no person other than

(a) an operator;

(b) a person required to handle the load; and

(c) a person authorized by a supervisor to be responsible for the trip

rides on the mobile equipment, except in a medical emergency or if it is not reasonably practicable to transport persons by another means.

Transportation of persons by rail-bound personnel carrier

288 (1) No person is permitted to operate a rail-bound personnel carrier within 100 m of another train on the same track, except for the purpose of coupling or uncoupling the mine cars.

(2) An employer must ensure that a competent person directs a rail-bound personnel carrier and that the competent person

(a) ensures that the couplings and safety chains are secured to the mine cars;

(b) ensures that all persons are properly seated and all loads are secured;

(c) signals for the rail-bound personnel carrier to stop or start; and

(d) operates all rail track switches.

(3) At places where persons get on or off a personnel carrier, an employer must provide adequate clearance between the persons getting on and off the carrier and any energized electrical installation, and must ensure that persons are prevented from coming into contact with an energized electrical installation.

Drop-bottom mine cars used to transport persons

289 An employer must ensure that a drop-bottom mine car, designed so that it can be emptied from the bottom, that is used to transport persons has the bottom adequately secured by at least 2 independent locking devices.

Part 10 - Mine Hoisting Plants

Definitions

290 In this Part,

(a) "automatic hoist" means a hoist that can be operated by controls situated at shaft stations or on the shaft conveyance;

(b) "balance rope" means a steel-wire rope, generally of the same weight per foot as the main winding rope, that is attached to the bottom of the cages, and extends down to form a loop in the shaft bottom and that functions to balance out the difference in weight of the upgoing or downgoing main ropes during the wind;

(c) "chair" means a moveable support arranged to hold a shaft conveyance as required;

(d) "crosshead" means a runner or framework that runs on guides, and is placed above, and in close proximity to, the sinking bucket to prevent it from swinging;

(e) "drum hoist" means a hoist in which the hoisting rope is wound on a drum;

(f) "friction hoist" means an electrically-powered hoist in which the driving force between the drum and the hoisting rope supporting the shaft conveyance is obtained through friction;

(g) "guide rope" means a conductor made of wire rope that is used to guide the cages in the shaft and to prevent them from swinging and colliding with each other while in motion;

(h) "headframe" means a structure at the top of a mine shaft that carries the sheaves for the hoisting ropes;

(i) "hoisting rope" means a rope composed of a sufficient number of wires and strands to ensure adequate strength and flexibility to support a shaft conveyance;

(j) "non-destructive test" means a test of an object that does not damage, destroy or distort the object, or affect the mechanical strength of the object;

(k) "rubbing rope" means a rope installed in a shaft to prevent possible collision between cages and skips;

(l) "shaft compartment" means a space or division in a shaft in which only one shaft conveyance operates;

(m) "shaft obstruction" means any protrusion into a shaft compartment in which hoisting may be carried out;

(n) "shaft rope" means a hoisting, tail, balance, guide or rubbing rope; and

(o) "tail rope" means a rope used as a counterbalance that is attached beneath a cage when the cage is hoisted.

Tests and report by engineer on mine hoisting plant

291 (1) Before the mine hoisting plant is put into initial service in a particular location, an employer must

(a) test the effectiveness of the brakes, clutches, overwind devices and other hoist controls of the mine hoisting plant;

(b) ensure that a report of the tests required by clause (a) is prepared by an engineer; and

(c) ensure that the results of the tests required by clause (a) are certified as satisfactory by the engineer who prepared the report.

(2) An employer must keep a report referred to in clause (1)(b) for 2 years after the date the equipment referred to in the report is no longer used at the mine.

The intent of this section is to have the required tests performed **before** the hoist's first lift; or if a hoist is moved to a new location, the tests would have to be repeated before it's first lift. The tests are not required for the first lift by the machine after these mining regulations became force. For greater clarity if a hoist has made its first lift, has not been relocated, and was simply inactive when these regulations came into being the tests are not required. (February, 2005)

Defective or non-repaired mine hoisting plant

292 No employer is permitted to operate a mine hoisting plant if the employer knows or ought to know that the mine hoisting plant has a defect that could affect the health or safety of mine workers, or is in need of repair, except to correct the defect or carry out the repair.

Records for inspections, tests, calibrations and maintenance

293 (1) An employer must ensure that a competent person makes a record of each inspection, test, examination, calibration, and maintenance required by this Part.

(2) An employer must keep the records required by subsection (1) for hoisting equipment and shaft ropes for 2 years after the date the equipment and ropes are no longer used at the mine.

(3) For the purposes of the shaft inspections required by Section 296, the electrical component inspections required by Section 321, the mechanical components inspections required by Section 322, and the mechanical components testing required by Section 323, an employer must create the following records:

(a) shaft inspection record;

(b) electrical hoisting equipment record; and

(c) mechanical hoisting equipment record.

(4) An employer must ensure that the records required by subsection (3) are kept for at least 2 years after the date the equipment referred to in the records are no longer used at the mine.

Headframe design

294 An employer must have the design plans of a headframe for the surface or underground certified by an engineer, and the engineer must certify that the headframe is of sufficient
height to allow for an overwind that exceeds the greater of

(a) 3 m; and

(b) twice the stopping distance of the hoist at the maximum speed permitted by the hoist controls.

Shaft design

295 (1) An employer must ensure that a shaft

(a) is designed in accordance with generally accepted engineering principles; and

(b) has a means for guiding each shaft conveyance to prevent contact with another shaft conveyance or with shaft furnishings.

(2) Except during shaft sinking, or if chairs are used to land a skip during loading, an employer must ensure that the distance between the lowest shaft station and the bottom of the shaft or any shaft obstruction below the lowest shaft station exceeds the stopping distance of the shaft conveyance when traveling at the maximum speed permitted by the hoist controls.

(3) If there is a reasonable likelihood that a shaft conveyance could contact standing water in the shaft bottom, except during a shaft sinking, an employer must install a barrier or obstruction in the shaft at a point adequately high to prevent the shaft conveyance from contacting water in the shaft bottom.

(4) An employer must ensure that a shaft that uses a friction hoist has tapered guides or other similar devices

(a) above and below the designed limits of travel of the shaft conveyance and counterweight; and

(b) arranged to act as a direct physical brake to decelerate and stop the counterweight and shaft conveyance in the event that they go above or below their designed limits of travel.

Shaft inspections

296 (1) An employer must ensure that, at least once a week, a competent person inspects all active shafts.

(2) An employer must ensure that at least once a month, a competent person examines in active shafts the

(a) shaft guides and attachments;

(b) shaft timbers;

(c) wall rock;

(d) partitions;

(e) shaft lining, casing, and rings;

(f) shaft conveyance clearance;

(g) ladders and landings;

(h) compartments used for hoisting; and

(i) and the general conditions of the shaft.

(3) An employer must ensure that at least once each month, a competent person inspects the shaft sump to assure that the tail, guide rope and rubbing rope connections are clear of water and spillage.

(4) An employer must ensure that, at least once a year, a competent person examines water in the shaft sump to assess any possible corrosion impacts from the water.

(5) If a shaft has not been inspected or examined within the preceding week, an employer must ensure that a competent person examines it immediately before the hoist is used for any purpose other than a shaft inspection or examination.

(6) An employer must ensure that a competent person who performs an inspection or examination required by subsections (1) to (5) records the results of the inspection or examination and any servicing or repairs carried out in the shaft inspection record.

(7) An employer must ensure that at least once a

week, the supervisor responsible for the mine shaft and headframe

(a) reviews the entries made in the shaft inspection record during the preceding week;

(b) ascertains that the inspections and examinations required by this Section have been made, the results recorded, and all necessary work done; and

(c) certifies in the shaft inspection record that the supervisor has complied with clauses (a) and (b).

Shaft obstructions

297 (1) An employer must use protective devices and must develop procedures, including plans and instructions, to prevent a shaft conveyance or counterweight from coming into contact with a shaft obstruction.

(2) An employer must ensure that any device that could become a shaft obstruction is adequately secured to prevent inadvertent entry into the shaft compartment.

(3) An employer must ensure that

(a) a procedure, including plans and instructions, for operating the hoist where there is a shaft obstruction, or a device that could become a shaft obstruction, is developed; and

(b) a copy of the procedure required by clause (a) is posted in a conspicuous place for use by the hoist operator.

(4) Service doors for covering a shaft at the collar are not a shaft obstruction if

(a) they are adequately secured in the open position when not in use; and

(b) adequate devices are installed to directly indicate to the hoist operator that the doors are no longer obstructing the shaft compartment serviced by those doors when the doors are adequately secured in the open position.

Design of hoistroom

298 An employer must ensure that a hoistroom is designed, constructed, and maintained so that the hoist operator cannot receive audible signals other than those given to the hoist operator by the person designated under Section 355, or by a person authorized by these regulations to communicate with the hoist operator.

Hoist certificate

299 (1) An employer must obtain a certificate for a hoist from the manufacturer of the hoist or an

engineer that certifies the maximum

(a) shaft rope pull;

(b) suspended load; and

(c) unbalanced load for a friction hoist.

(2) An employer must ensure that no hoist is loaded in excess of the maximums certified under subsection (1).

Hoist brakes

300 (1) An employer must not use a hoist unless it has a braking system with at least 2 sets of mechanical brakes to stop and hold the drum of the shaft conveyance.

(2) An employer must ensure that each set of mechanical hoist brakes

(a) stop and hold the drum when the shaft conveyance or counterweight is operating at its maximum load;

(b) are arranged so that they can be tested and calibrated independently; and

(c) are arranged to apply normal braking effort before a linkage or brake piston reaches its limit of travel.

(3) An employer must ensure that at least 1 set of the mechanical hoist brakes required by subsection (1)

(a) applies directly to the drum; and

(b) applies automatically when

(i) the safety circuit of the hoist is tripped, or

(ii) the pressure in the hydraulic or pneumatic system for applying brakes drops below normal.

(4) An employer must ensure that a hoist braking system is arranged

(a) to the manufacturer's specifications;

(b) so that any brake weights installed to provide auxiliary braking force can be readily tested and calibrated for freedom of movement; and

(c) so that the hoist brakes are applied automatically upon the loss of power to the hoist or hoist brakes.

Brakes on a hoist that transports people

301 An employer must ensure that if braking on a drum hoist normally used for transporting persons is initiated by a tripped safety circuit, the brakes

(a) decelerate the hoist at a rate greater than 1.5 m/s^2 and less than 3.7 m/s^2; and

(b) adequately stop and hold the hoist under all conditions of normal load, speed and direction of travel.

Hoist clutch

302 (1) An employer must ensure that the clutch of a drum hoist is interlocked with the brake so that

(a) the clutch can be disengaged only when the brake of the drum is fully applied; and

(b) the clutch must be fully engaged before the brake on the drum can be released.

(2) An employer must ensure that the controls for engaging and disengaging the clutch on a hoist are guarded to prevent their inadvertent operation.

(3) An employer must ensure that no hoist is equipped with a band-type friction clutch.

Drum to shaft rope ratios

303 (1) An employer must ensure that the ratio of the drum diameter to the shaft rope diameter and

the ratio of the sheave diameter to the shaft rope diameter is

(a) for a drum hoist, except as required by clause (b), equal to or greater than

  (i) 60 to 1, if the nominal shaft rope diameter is 25.4 mm or less, or

  (ii) 80 to 1, if the nominal shaft rope diameter is greater than 25.4 mm;

(b) for a drum hoist used for shaft sinking or for preliminary development work during shaft sinking, equal to or greater than

  (i) 48 to 1, if the nominal shaft rope diameter is 25 mm or less, or

  (ii) 60 to 1, if the nominal shaft rope diameter is greater than 25 mm;

(c) for a friction hoist, equal to or greater than

  (i) 80 to 1, for stranded shaft ropes, and

  (ii) 100 to 1, for locked coil shaft ropes.

Prohibited hoists

304 (1) No employer is permitted to use a drum hoist that has

(a) more than 3 layers of shaft rope, if the drum has helical or spiral grooving or does not have grooving;

(b) more than 4 layers of shaft rope, if the drum has parallel and half-pitch grooving; or

(c) less than 3 dead turns of the shaft rope on the drum.

(2) No employer is permitted to use steam or air to power a drum or friction hoist.

Drum hoist grooves

305 (1) An employer must ensure that the drum of a drum hoist has

- (a) grooves that properly fit the shaft rope, unless the hoist is being used for shaft sinking or preliminary development work during shaft sinking, in which case the drum may be smooth; and

- (b) flanges that are

  - (i) of sufficient height to contain all the shaft rope, and

  - (ii) strong enough to withstand the maximum load likely to be imposed on the flanges by the shaft rope.

(2) An employer must ensure that a drum hoist with a conical drum has grooves on the drum that prevent the shaft rope from slipping off.

Drum hoist and sheave arrangements for rope winding

306 An employer must ensure that a drum hoist and a sheave are arranged so that the shaft rope

(a) coils properly across the face of the drum;

(b) winds smoothly from one layer to another; and

(c) winds without cutting into the shaft rope layer beneath.

Bolts and other fittings of mine hoisting plant tightened

307 An employer must ensure that the bolts and other fittings of a mine hoisting plant are properly tightened to, and at a frequency required by, the manufacturers' specifications.

Depth indicator required on hoists

308 An employer must provide a hoist with depth indicators that continuously, accurately and clearly show the hoist operator the position

(a) of a shaft conveyance and counterweight, if any;

(b) of the limits of normal travel for the shaft conveyance and counterweight, if any;

(c) of any shaft obstruction;

(d) of any collar doors, dump doors and crosshead landing chairs; and

(e) at which the overwind, underwind and track limit devices are set to operate.

Certificate required for sheave

309 (1) Before a sheave is first used or relocated, an employer must obtain a certificate for the

The intent of this section is to have the required tests performed **before** a sheave is first used; or if it has been sheave from the manufacturer of the sheave or an engineer *certifying as to*

(a) the maximum rated load of the sheave;

(b) the diameter of shaft rope for which the sheave is designed;

(c) the breaking strength of the shaft rope for which the sheave is designed; and

(d) the maximum amount of groove wear that is permitted for the sheave.

(2) An employer must ensure that no person is permitted to use a sheave other than in compliance with the limits certified under subsection (1).

Sheave construction and identification

310 An employer must ensure that a sheave

(a) is made of materials that will withstand the ambient temperatures;

(b) is fitted with a groove to fit the shaft rope being used; and

(c) bears a serial number and the date of its manufacture.

Testing of shaft of sheave

311 An employer must ensure that a competent person tests the shaft of a sheave for flaws, by a non-destructive test

(a) before being installed in a particular location;

(b) immediately after installation in a particular location; and

(c) annually, or as recommended by the manufacturer, whichever is less.

moved to a new location, the tests would have to be *repeated before its first* use. The tests are not required for the first use by the sheave after these mining regulations became force. For greater clarity if a sheave has been used, has not been relocated, and was simply inactive when these regulations came into being the tests are not required. (February, 2005)

Safety circuits and safety devices for electrically-powered hoists

312 (1) No employer is permitted to use a hoist that is electrically-powered unless it has a safety circuit that

(a) is fail-safe; and

(b) when tripped

(i) activates the brakes, and

(ii) removes power from the hoist motors.

(2) An employer must ensure that safety devices or switches required by this Section are effective under the environmental conditions at their operating locations.

(3) An employer must ensure that the safety circuit of an electrically-powered hoist is tripped when

(a) there is a failure in a power supply to the hoist electrical system that could affect safe operation of the hoist;

(b) there is an overload on the hoist motors of a magnitude and duration exceeding normal or exceeding manufacturer's specifications;

(c) there is a short circuit in the hoist electrical system; or

(d) a safety switch or device required on the hoist by subsection (4), (5) or (6), is activated.

(4) An employer must install a safety switch to enable a person to trip the safety circuit of an electrically powered hoist and the switch must be

(a) manually operable;

(b) located within easy reach of the hoist operator when at the controls;

(c) readily recognizable; and

(d) readily operable.

(5) An employer must install a safety device in each shaft compartment that will trip the safety circuit of an electrically-powered hoist when the shaft conveyance or counterweight travels above or below its designed limits of travel.

(6) An employer must install devices on an electrically-powered hoist to protect a shaft conveyance or counterweight from

(a) an overwind;

(b) an underwind, except during shaft sinking;

(c) approaching the limits of travel at an excessive speed; and

(d) operating or being operated at a speed in excess of that for which the mine hoisting plant was designed and intended.

(7) An employer must ensure that the devices required by subsection (6)

(a) trip the safety circuit of the hoist when activated;

(b) are driven by the drum;

(c) are in motion when the hoist is in motion;

(d) prevent the paying out of excess shaft rope during shaft sinking; and

(e) are set to stop the hoist before a shaft conveyance, counterweight, or their attachments make contact with a fixed part of a shaft or headframe.

(8) An employer must ensure that a friction hoist is equipped with independent slowdown protection and a synchronizing device.

(9) An employer must install on a friction hoist an excessive slip device, a tread wear device, and a balance rope loop switch, that will trip the safety circuit of the hoist when

(a) there is abnormal slip between the drum and the ropes;

(b) there is abnormal wear of the hoisting rope treads or the tread wear limit is reached; or

(c) a violent swing or large rise in the loop of a balance rope occurs.

(10) An employer must install safety devices in a shaft in which a friction hoist operates that will trip the safety circuit of the hoist when a shaft conveyance or a counterweight approaches the collar of the shaft at excessive speed.

(11) An employer must install a device on a hoist that synchronizes the position of the shaft conveyance with the devices required by subsection (6).

(12) An employer must ensure that an electrically-powered hoist has

(a) an ammeter within clear view of the hoist operator to indicate the hoist motor current;

(b) an audible device to warn the hoist operator that the hoist is approaching the position where a reduction in speed is necessary for safe manual braking, unless the hoist automatically slows down when the limits of travel are reached;

(c) a device that indicates the speed of the hoist;

(d) adequate devices that allow a shaft conveyance or counterweight that has traveled beyond its normal limits of travel to be returned within its normal limits of travel and that

(i) are manually operable only, and

(ii) prevent the brake or brakes from being released until sufficient torque is developed to ensure movement in the correct direction;

(e) adequate by-pass devices that allow a shaft conveyance or counterweight to travel beyond the normal limits of travel and that

(i) are manually operable only,

(ii) when in use, restrict the hoist operation to slow speed, and

(iii) allow the hoist to travel beyond devices preventing the shaft conveyance or counterweight from traveling beyond its normal limits of travel;

(f) a master controller device with a neutral or brake reset position; and

(g) any brake operating levers arranged so that when the safety circuit of the hoist is tripped, power to the hoist cannot be restored until the levers are in the brake-applied position.

(13) An employer must ensure that no person other than a designated competent person alters the adjustments of a safety device of a hoist.

Design and installation of automatic hoist operating controls

313 (1) An employer must install on an automatic hoist a selector device that makes it possible to choose a manual or automatic means of controlling the hoist and that is

(a) readily accessible to the manual controls; and

(b) operated only by a designated person.

(2) If a hoist is designed to be operated from controls located at shaft stations and within a shaft conveyance, an employer must ensure that a device at a shaft station for the change-over to and from the controls at the shaft station and the controls within the shaft conveyance operates only at the shaft station at which the shaft conveyance is stopped.

(3) An employer must ensure that a device installed at a shaft station for the purpose of selecting the shaft conveyance destination and initiating hoist movement operates only when

(a) the shaft conveyance is stopped at that shaft station; and

(b) the hoist is designed for the use of the device.

(4) Except for jogging, when a shaft conveyance is moved forward slowly, an employer must ensure that a device required by subsection (3)

(a) located at a shaft station operates only when the shaft gate at the shaft station where the shaft conveyance is stopped, is closed; or

(b) located within a cage operates only when the door of the cage and gate of the shaft are closed.

(5) If the controls of the device required by subsection (3) are located within a cage, an employer must ensure that a safety device is installed in the cage that can trip the safety circuit of the hoist.

(6) An employer must ensure that the control devices of all hoists are designed and constructed to be fail-safe.

Testing of shaft ropes before first use

314 No employer is permitted to use a shaft rope unless

(a) a 2.5 m representative sample has been tested for its breaking strength by a competent cable-testing laboratory using a destructive test; and

(b) a certificate of the test required by clause (a) is obtained from the laboratory.

Procedure for testing hoisting rope of friction hoist

315 An employer must develop a procedure for inspecting the hoisting rope of a friction hoist within the attachments at the shaft conveyance or counterweight.

Regular testing of shaft ropes

316 (1) In this Section, "lay length" means the length of rope required for a strand of the rope to make one complete spiral around the rope's core.

(2) At least every 6 months, an employer must

(a) cut off a 2.5 m long portion of a drum hoist hoisting rope at the lower end above the clamps and submit it to a competent cable-testing laboratory for a test of its breaking strength by a destructive test; and

(b) obtain a certificate of the test required by clause (a) from the laboratory.

(3) A competent person must test a hoisting rope that is installed in a shaft throughout its working length by using a non-destructive testing device

(a) within 6 months of its first use; and

(b) at least every 6 months if, or at intervals shorter than 6 months, by extrapolating the results of past tests, the loss in breaking strength is predicted to exceed 10% before the next prescribed test.

(4) A competent person must test a balance rope and, if reasonably practicable, a guide rope in use throughout its working length by using a non-destructive testing device

(a) within 12 months of its first use; and

(b) at regular intervals not exceeding 8 months or at least every 4 months after a test discloses a loss in breaking strength that exceeds 5% of the breaking strength set out in the rope's original certificate of testing obtained under clause 314(b).

(5) A competent person who conducts a non-destructive test under this Section must record the date of the test and the results obtained.

(6) An employer must keep the record referred to in subsection (5) for 2 years after the date the rope is no longer used at the mine.

(7) If a non-destructive test carried out under this Section shows a loss of breaking strength that exceeds 7.5% of the strength of the rope at the time of its installation, an employer must ensure that

(a) the rope is taken out of service until a competent cable testing laboratory certifies that it may be put back into service; and

(b) a copy of the record of the test, and a copy of the certification obtained under clause (a), is given to the committee, or representative, if any.

(8) No employer is permitted to use a shaft rope if

(a) the extension of a test piece has decreased to less than 60% of its original extension when tested to destruction and marked corrosion or considerable loss in wire torsions has occurred; or

(b) the number of broken wires, excluding filler wires, in any section of the rope equal to one lay length exceeds 5% of the total number of wires excluding filler wires.

(9) No employer is permitted to use a shaft rope if a destructive test shows a loss in breaking strength of the rope from the breaking strength set out in the rope's original certificate of testing obtained under clause 314(b) that exceeds

(a) for a hoisting rope, 90%;

(b) for a multi-layer, multi-strand balance rope, 90%;

(c) for a single layer stranded balance rope, 85%; or

(d) for a guide or rubbing rope, 75%.

(10) No employer is permitted to use a hoisting rope on a friction hoist if the rate of stretch in the rope exceeds the rope stretch specifications defined by the manufacturer.

(11) An employer must provide portions of a shaft rope for a destructive test when required to do so by an officer.

Prohibition against hoisting rope that is spliced or reversed

317 No employer is permitted to use a rope that is spliced or reversed as a hoisting rope.

Minimum nominal diameter of hoisting rope

318 An employer must ensure that the minimum nominal diameter of a hoisting rope exceeds

(a) 16 mm, if only 1 rope supports a shaft conveyance or counterweight; or

(b) 13 mm, if more than 1 rope supports a shaft conveyance or counterweight.

Factors of safety for hoisting ropes

319 (1) An employer must ensure that the factor of safety of a hoisting rope installed on a drum hoist, when installed, is at least 5.0 at the point the rope leaves the head sheave when the shaft conveyance or counterweight is at its lowest point of normal travel and at least

(a) 8.5, at the point the rope is attached to a shaft conveyance that carries people; or

(b) 7.5, at the point the rope is attached to a shaft conveyance that does not carry people.

(2) An employer must ensure that the factor of safety of a hoisting rope installed on a friction hoist, when installed, is at least the greater of

(a) 5.5; and

(b) the factor obtained from the formula 8.0 - (0.00164 x d), where "d" is the maximum length of the rope in meters in the shaft compartment below the head sheave or the drum of the friction hoist.

(3) An employer must ensure that the factor of safety of a balance rope, when installed, is at least 7.

(4) An employer must ensure that the factor of safety of a guide rope or a rubbing rope, when installed, is at least 5.

(5) When hoisting is discontinued or suspended in a shaft compartment, an employer must immediately remove each hoisting rope from the shaft, unless each hoisting rope is maintained and tested in accordance with these regulations.

Shaft rope attachments

320 (1) An employer must ensure that a shaft rope is attached to a shaft conveyance by closed-type devices that will not inadvertently disconnect from the object to which the shaft rope is attached.

(2) An employer must ensure that a hoisting rope is attached from a shaft conveyance or counterweight to the drum of the hoist.

(3) No employer is permitted to use wedge-type attachments to attach a shaft rope to a shaft conveyance unless the attachments are

(a) in adequate condition; and

(b) certified at least once every 6 years of use as being in adequate condition by a competent person or by the manufacturer.

(4) When the attachments for a hoisting rope are first installed, or re-installed after disassembling, an employer must ensure that before the hoist is put to use, a competent person carries out

(a) 2 test trips of the shaft conveyance or counterweight through the working part of the shaft, while the shaft conveyance or counterweight is carrying normal load;

(b) an examination of the attachments upon the completion of the test trips required by clause (a);

(c) any necessary adjustments to the attachments; and

(d) a retest of the attachments in accordance with clauses (a), (b) and (c),

until the hoist operates adequately.

(5) An employer must ensure that a competent person who carries out the tests under subsection (4) records the test trips, examinations, and any adjustments made.

(6) An employer at a coal mine must ensure that a record referred to in subsection (5) is kept

for as long as the attachments referred to in subsection (4) are used at the mine.

(7) If shaft rope attachments are made using rope clips, an employer must ensure that the number of clips used and the torque on the clips is in accordance with the specifications certified by an engineer.

Inspection of electrical components of mine hoisting plant

321 (1) An employer must designate a competent person to inspect the electrical components of a mine hoisting plant in accordance with this Section.

(2) Unless a greater frequency or a different type of inspection is recommended by the manufacturer or specified by an engineer, an employer must ensure that the person designated under subsection (1) inspects, at least once a week,the

(a) hoist motors;

(b) hoist controls;

(c) electrical safety devices and interlocks; and

(d) any communication system related to the hoist.

(3) For a friction hoist, an employer must ensure that the person designated under subsection (1) inspects, at least once a week, the

(a) excessive slip device;

(b) tread wear device;

(c) synchronizing device;

(d) independent slowdown protection; and

(e) balance rope loop switch.

(4) An employer must ensure that the person designated under subsection (1) inspects, at least once a week, the indicating devices required by subsection 335(3).

(5) An employer must ensure that the person designated under subsection (1) records the results of the inspections performed under this Section, and any servicing and repairs carried out, in the electrical hoisting equipment record.

(6) An employer must ensure that the supervisor responsible for electrical hoisting equipment records in the electrical hoisting equipment record a failure or accident involving an electrical component of a hoist motor, hoist controls, or hoist safety or signaling devices.

(7) An employer must ensure that, at least once a week, the supervisor responsible for a mine hoisting plant

(a) reviews the entries made in the electrical hoisting equipment record during the preceding week;

(b) ascertains that the inspections required by this Section have been made, the results recorded, and all necessary work done; and

(c) certifies in the electrical hoisting equipment record that they have complied with clauses (a) and (b).

(8) An employer at a coal mine must ensure that, at least once a month, the coal mine underground manager reviews and countersigns the entries made in the electrical hoisting equipment record.

Inspection of mechanical components of mine hoisting plant

322 (1) An employer must designate a competent person to examine the mechanical components of a mine hoisting plant in accordance with this Section.

(2) An employer must ensure that, at least once every working day the mine hoisting plant is in service, the person designated under subsection (1) inspects

(a) the exterior of each hoisting and tail rope, and their attachments, to detect the presence of kinks or other damage and to note the appearance of the tail rope dressing; and

(b) the safety catches of a shaft conveyance, for any defects.

(3) An employer must ensure that, at least once a week, the person designated under subsection (1) inspects

(a) head, deflection or idler sheaves, and their shafting, bearer plates and sole plates;

(b) the attachments of each shaft rope;

(c) the attachments on a shaft conveyance or counterweight;

(d) a shaft conveyance, counterweight or work platform;

(e) shaft conveyance safety devices, for proper adjustment and freedom of movement;

(f) brakes, brake-clutch interlocks and depth indicators;

(g) auxiliary brake operating weights, to assure their freedom of movement and holding capacity; and

(h) hoisting equipment being used for shaft sinking.

(4) An employer must ensure that, at least once a month, the person designated under subsection (1) inspects

(a) the shaft ropes to determine

(i) the amount of wear, distortion and corrosion,

(ii) the need for lubrication, and

(iii) the need for changing the wear patterns;

(b) the hoisting ropes, for the number and location of broken wires; and

(c) the friction treads of a friction hoist, by

(i) a visual inspection of the outside of the rope, and

(ii) measuring the reduction in the diameter of the rope.

(5) An employer must ensure that, at least once every 3 months, the person designated under subsection (1) inspects and tests the safety catches and mechanisms of a shaft conveyance to ensure that they work adequately.

(6) An employer must ensure that, at least once every 6 months, the person designated under subsection (1) inspects

(a) the hoisting rope of a drum hoist within the attachments at the drum and at the point the rope attaches to the drum; and

(b) the hoisting rope of a friction hoist within the attachments at the shaft conveyance or counterweight in accordance with a procedure developed by the employer.

(7) An employer must ensure that, at least once every 12 months, the person designated under subsection (1) inspects

(a) the bolt locking devices, foundation bolts and all bolts critical to hoist safety;

(b) the bails, suspension gear and structure of a shaft conveyance and counterweight and,

(c) all structural elements of the headframe, including headframe foundation, backlegs, and sheave deck.

(8) An employer must ensure that the person designated under subsection (1) records the results of the inspections performed under this Section, and any servicing and repairs carried out in the mechanical hoisting equipment record.

(9) An employer must ensure that, at least once a month, the person designated under

subsection (1) cleans and dresses with lubricant the hoisting ropes in use on a drum hoist, and makes a record of the cleaning and dressing in the mechanical hoisting equipment record.

(10) An employer must ensure that a record made under subsection (9) is dated and signed by the supervisor responsible for the work.

(11) An employer must ensure that the supervisor responsible for the mechanical hoisting equipment records a failure or accident involving a mechanical component of a mine hoisting plant in the mechanical hoisting equipment record.

(12) An employer must ensure that, at least once a week, the supervisor responsible for a mine hoisting plant

(a) reviews the entries made in the mechanical hoisting equipment record during the preceding week;

(b) ascertains that the inspections required by this Section have been made, the results recorded, and all necessary work done; and

(c) certifies in the mechanical hoisting equipment record that they have complied with clauses (a) and (b).

(13) An employer at a coal mine must ensure that at least once a month, the coal mine underground manager reviews and countersigns the entries made in the mechanical hoisting equipment record.

Non-destructive tests of mechanical components of mine-hoisting plant

323 (1) An employer must ensure that before they are first used and at regular intervals that are no greater than those recommended by the person designated under subsection 322(1), the person designated under subsection 322(1) examines, using non-destructive tests to determine their condition, the

(a) hoist shafting brake pins and linkages;

and

(b) structural parts, attachment pins and draw-bars of a shaft conveyance and counterweight,

and records the results of each examination in the mechanical hoisting equipment record.

(2) Upon request, an employer must make the drawings of components required to be examined under subsection (1) available to the person performing the examination.

(3) The supervisor responsible for the mechanical hoisting equipment must review and countersign a record of an examination made under subsection (1).

Trimming of hoisting rope and tail rope on friction hoist

324 Every 18 months that a friction hoist is in service, an employer must cut off the portion of the hoisting rope and tail rope that is within the wedge and socket attachments unless that portion of the rope is inspected under clause 322(4)(b) and subsection 322(6) and it is found that

(a) there are no broken wires;

(b) there is no advanced corrosion;

(c) there is no excessive pitting; and

(d) there is no excessive deformation of wires.

Certificate required for certain shaft conveyances and counterweights

325 (1) For each shaft conveyance or counterweight, other than a train as defined in subclause 7(cl)(iii), an employer must obtain a certificate showing

(a) its serial number, its date of manufacture and the name of the manufacturer;

(b) its rated load, as certified by an engineer; and

(c) for a shaft conveyance, the maximum number of persons and the maximum weight of materials that the conveyance is permitted to hold, as certified by an engineer.

(2) In determining the maximum weight of materials that a shaft conveyance is permitted to hold for the purpose of clause (1)(c), an engineer must consider the maximum load that the mine hoisting plant is capable of adequately carrying.

(3) In determining the maximum number of persons that a shaft conveyance is permitted to hold for the purpose of clause (1)(c), an engineer must allot

(a) if the clear floor area of the deck of the shaft conveyance is 2 m^2 or less, at least 2000 cm^2 for each person carried on the shaft conveyance; or

(b) if the clear floor area of the deck of the shaft conveyance is more than 2 m^2, at least 1500 cm^2 for each person carried on the shaft conveyance,

but the number of people permitted must not exceed 85% of the maximum weight of materials that the conveyance is permitted to hold, divided by 90 kg.

(4) An employer must post a notice at a conspicuous place at the shaft collar stating the rated loads and maximum permitted numbers of persons and weight of materials as certified by the engineer under subsection (1).

(5) No employer is permitted to allow a shaft conveyance to be loaded in excess of the maximum number of persons or maximum weight of materials that the conveyance is permitted to hold.

(6) At least once every 5 years of use, an employer must ensure that a competent person examines each shaft conveyance and counterweight and records the results of the examination.

(7) An employer must ensure that the record referred to in subsection (6) is kept for at least 2 years after the date the equipment referred to in subsection (6) is no longer used at the mine.

Maximum allowable design stresses for shaft conveyance

326 (1) An employer must ensure that each part of a shaft conveyance or counterweight that carries the rated load is capable of withstanding at least 4 times the maximum allowable design stresses without permanent distortion to any part of a shaft conveyance or counterweight.

(2) An employer must obtain a certificate from an engineer certifying that all parts of a shaft conveyance or counterweight meet the requirements of subsection (1).

(3) When determining the maximum allowable design stresses for the purpose of subsection (1), an engineer must refer to the maximum allowable design stresses established by generally accepted engineering principles and consider for each shaft conveyance or counterweight

(a) its weight;

(b) its rated load;

(c) any impact load;

(d) any dynamic load;

(e) stress concentration factors;

(f) corrosion;

(g) metal fatigue; and

(h) effects of the use of different materials in contact with each other.

Procedure for commissioning of shaft conveyance transporting persons

327 An employer must develop a procedure for the commissioning of a shaft conveyance where persons are being transported for the first time by a shaft conveyance.

Design and construction of cages used to transport persons

328 (1) An employer must ensure that a cage that is used to transport persons has

(a) sides except for a side that has a door, that are enclosed by steel plate at least 3 mm thick or by another metal that provides equivalent protection;

(b) a door that is in accordance with subsection (2);

(c) a hood made of steel plate, at least 5 mm thick, or made of another metal that provides equivalent protection;

(d) if reasonably practicable, an exit in the roof that can be opened from inside or outside the cage;

(e) an internal height greater than 2.1 m;

(f) a clearance at the door that is greater than 1.8 m high;

(g) safety catches and mechanisms that are in accordance with Section 332 if it is supported by only a single shaft rope or attachment point; and

(h) adequate ventilation for the persons being transported.

(2) An employer must ensure that the door on a cage

(a) is made of solid materials and construction, except for a viewing window;

(b) is of sufficient strength to withstand normal shock loads;

(c) is at least 1.5 m high;

(d) is arranged so that it can be closed at all times that persons or materials, except rolling stock or material secured to the cage, are being transported in the cage;

(e) is mounted so as to provide only enough clearance at the floor to permit free closing or opening of the door;

(f) is mounted and arranged so that it cannot be opened outward from the cage; and

(g) has devices for locking in the closed position.

Chairs for landing cage

329 (1) An employer must ensure that chairs used for landing a cage

(a) are arranged to fall clear and remain clear of the shaft compartment when the cage is lifted off the chairs;

(b) are operable only from outside the cage; and

(c) are arranged so they do not distort the cage.

(2) An employer must ensure that chairs that are fastened to shaft station posts are of a chain type.

Design and construction of skip used to transport persons

330 (1) Upon request by an employer, the Director may permit an employer to use a skip to

transport persons in a shaft if the skip has

(a) a means for safe entry and exit;

(b) a suitable floor that is adequately fastened;

(c) an enclosure at least 1.0 m high for the persons being transported;

(d) safety catches and mechanisms in accordance with Section 332, if the skip is supported by only a single shaft rope or attachment point; and

(e) adequate ventilation for the persons being transported.

(2) Despite subsection (1), an employer may use a skip to transport persons in a shaft for the purposes of shaft examination, shaft maintenance, or in an emergency

(3) For the purposes of subsection (2), a skip is being used in an emergency when it is used to

(a) hoist injured people;

(b) evacuate people; or

(c) fight fire.

(4) An employer must ensure that no person, while entering or exiting a skip, falls into an opening between a skip and a shaft.

(5) An employer must ensure that a shaft signal pull cord is located in a convenient place for the skip tender to use or cage tender when persons are being transported in a skip.

Control devices for skip carrying persons

331 (1) If a skip is being used to carry persons in accordance with subsections 330(1) and (2), an employer must ensure that

(a) its hoist is equipped with control devices that prevent the skip from being

(i) put in the dump position, or

(ii) taken to the skip loading pocket, or

(b) the controls for loading the skip with ore or waste have been made inoperative.

(2) An employer must ensure that a skip that is being used to carry persons does not travel in excess of 5 m/s.

Safety catches and mechanisms on a cage or skip

332 An employer must ensure that safety catches and mechanisms on a cage or skip

(a) are of a type and design approved by an engineer;

(b) are capable of stopping and holding a cage or skip that is transporting persons, if the supporting shaft rope or attachment breaks;

(c) are subjected to, and successfully pass, a free fall test in accordance with Section 333

(i) before the cage or skip is used to transport persons, and

(ii) after any repairs to correct distortion of the safety catches and mechanisms.

Free fall test of a hoist

333 (1) An employer must designate a competent person to conduct a free fall test on a hoist.

(2) An employer must ensure that a person designated under subsection (1) conducts a free fall test on a hoist to ensure the proper functioning of safety mechanisms and safety catches on a shaft conveyance and that

(a) the shaft conveyance is carrying a weight equal to the maximum load of persons and material permitted to be carried at the same time;

This Section only requires the free fall test to be conducted once in the life of a hoist. Since it is permissible to conduct the free fall test in a test tower, the manufacturer's test would be sufficient. The employer may designate the manufacturer's representative as the "competent person". (December 9, 2003)

(b) the shaft conveyance travels at

(i) at a speed equal to the normal hoisting speed when transporting persons, or

(ii) the speed attained by a free fall of 1.5 m; and

(c) the guides on which the test is made are of the same specifications as those in the shaft in which the shaft conveyance will operate.

(3) A person performing a free fall test on a hoist must ensure that the speed attained by the free fall does not exceed the speed attained by a free fall of 1.5 m unless the design and configuration of the safety catches are tested at normal hoisting speed before the free fall test.

(4) A free fall test on a hoist may be performed in a test tower that duplicates the conditions in the shaft in which the shaft conveyance will be operated.

(5) A free fall test for a hoist is successfully passed if

(a) the shaft conveyance decelerates to a stop at an average rate of at least 9 m/s^2 nor greater than 20 m/s^2;

(b) there is no damage to the safety catches and mechanisms; and

(c) the safety catches engage the guides continuously during deceleration.

(6) A person performing a free fall test on a hoist must record the rate of deceleration and the rate of change in deceleration of the shaft conveyance on a chart suitable for use in determining the deceleration of the shaft conveyance, and whether the free fall test successfully passed.

(7) An employer must ensure that the record referred to in subsection (6) is kept for at least 2 years after the date the hoist is no longer used at the mine.

Buckets used during shaft sinking and preliminary development work

334 (1) A bucket is permitted to be used as a shaft conveyance only during shaft sinking and preliminary development work.

(2) Subject to subsection (3), a mechanical device other than a bucket may be used to transport persons during shaft sinking and preliminary development work if it is designed in accordance with the requirements for a shaft conveyance in Section 325.

(3) An employer must ensure that, except as permitted in subsection (2),

(a) a bucket is used to transport persons when the vertical depth below the collar of a shaft exceeds 50 m; and

(b) the bucket referred to in clause (a) has sides at least 1.0 m high.

(4) No person is permitted to fill a bucket so that a piece of loose rock projects above the level of the rim.

Crossheads for buckets

335 (1) If the distance between a sheave and the shaft bottom exceeds 100 m, an employer must use a crosshead with a bucket.

(2) An employer must ensure that a crosshead

(a) lands on at least 2 chairs at the bottom crosshead stop to prevent distortion;

(b) is attached to the shaft rope by a safety appliance in such a manner that if the crosshead jams in the shaft compartment, the bucket is stopped; and

(c) is of a type that encloses the bucket, unless

(i) the shaft compartment is tightly lined, and

(ii) the bucket is barrel-shaped.

(3) An employer must install devices that directly indicate to the hoist operator that

(a) the crosshead and bucket are descending together from the bucket dumping position;

(b) the service doors are no longer obstructing the shaft compartment serviced by those doors; and

(c) the dump doors are no longer obstructing the shaft compartment serviced by those doors.

Service doors for sinking compartment of shaft

336 An employer must ensure that service doors are provided to cover the sinking compartment of a shaft and that the service doors are

(a) constructed, maintained and inspected in accordance with the manufacturer's specifications;

(b) installed at the collar and any other place in the shaft where tools and materials are loaded into or unloaded from the bucket;

(c) automatically closed and locked by mechanical devices when they are no longer obstructing the shaft compartment;

(d) closed when a bucket is being loaded or unloaded with tools and other materials; and

(e) closed when persons are entering or leaving a bucket, unless the closed crosshead provides equal protection for persons.

Dump doors for buckets

337 An employer must ensure that dump doors are installed at the bucket dumping position, and construct, inspect and maintain dump doors in the

shaft that

(a) prevent a bucket from being dumped when the dump doors are open;

(b) prevent any material from falling down the shaft while the bucket is being dumped; and

(c) automatically close and lock by mechanical devices when they are no longer obstructing the shaft compartment.

Movement of buckets

338 (1) Except during shaft maintenance, repairs and examination, a person being transported by a bucket must ride in the bucket when it is traveling above the bottom crosshead stop.

(2) An employer must ensure that a person designated under Section 355 to give signals for hoist movement does not allow a bucket to leave the top or bottom of the shaft until the bucket is steadied.

(3) An employer must ensure that when a bucket is returning to the shaft bottom, a hoist operator

(a) stops it at a distance of at least 5 m and not more than 10 m above the bottom of the shaft; and

(b) lowers it slowly below the point at which it stopped under clause (a) only on a separate signal.

(4) Persons may be at the bottom of the shaft during the dumping cycle of a bucket.

Initial trip of a bucket following blast

339 On the initial trip following a blast, an employer must ensure that no hoist operator lowers a bucket transporting persons below

(a) a point where the health or safety of persons is likely to be endangered; or

(b) a point 15 m above the blasting set or bulkhead, until the operator is signaled by the persons being transported to lower the bucket, and then only as slowly as is required to conduct an inspection of a part of the shaft that could have been affected by the blast.

Ladders during shaft sinking

340 During shaft sinking, an employer must ensure that there is a ladder from the bottom of the shaft to the first place where a person can exit or be conveyed out of the shaft.

Notice before first use of raise climber

341 An employer must give 30 days notice to the Director before using a raise climber for the first time.

Access to and removal from raise climber

342 An employer must make available for use a means by which persons can be reached and removed from a raise climber.

Raise climbers

343 (1) An employer must ensure that a raise climber

(a) has at least 2 independent means of braking, one of which is as close as practicable to the final drive of the motor, that are

(i) each capable of stopping and holding the raise climber when carrying its maximum rated load, and

(ii) arranged to permit independent testing;

(b) has displayed on the raise climber

(i) the maximum load that the raise climber may carry,

(ii) the maximum allowable speed of the raise climber, and

(iii) if applicable, the maximum allowable gradient that the raise climber may be used for

as certified by its manufacturer, or if such a certificate is unavailable, as certified by an engineer;

(c) is operated within the maximum load limit, the maximum allowable speed and, if applicable, the maximum allowable gradient;

(d) has a stop block to prevent the raise climber being taken beyond the track unless the track on which it operates is being extended; and

(e) has an effective means for communication between the raise climber and the raise service position.

(2) An employer must ensure that the strength of every load-carrying component in a power-driven raise climber is at least 5 times the maximum static load to which the component will be subjected in normal service.

(3) An employer must ensure that

(a) modifications to increase the capacity or speed of a power-driven raise climber or modifications to any of its components are designed by an engineer; and

(b) a power-driven raise climber is regularly inspected and maintained in an adequate condition.

Raise climbers powered by electricity

344 (1) An employer must ensure that a raise climber powered by electricity

(a) is protected by a ground fault system;

(b) has a visible break switch at the raise service area by which its power can be isolated;

(c) has a switch at the raise service area by which it can be de-energized; and

(d) a control switch on the raise climber by which it can be de-energized.

(2) An employer must ensure that the electrical supply to an electrically-powered raise climber is designed to be, and is, locked out while explosives capable of being electrically initiated are being loaded into position for blasting.

Inspection and maintenance of raise climbers

345 (1) An employer must ensure that a competent person inspects a device that could affect the safe operation of a raise climber

(a) before the raise climber is first used at a raise;

(b) every working day that the raise climber is used; and

(c) during every major overhaul of the raise climber and at least once every 4000 hours of use.

(2) An employer must ensure that a competent person examines the main shafting of the drive-train of a raise climber using ultrasonic procedures or equivalent methods to determine if it is in sound condition

(a) before the raise climber is used for the first time; and

(b) during every major overhaul of the raise climber and at least once every 4000 hours of use.

(3) An employer must ensure that, once a week, a competent person thoroughly cleans a raise climber being used at a raise.

(4) An employer must ensure that, before a raise

climber is first used during a shift, a competent person tests the brakes and controls of the raise climber.

Information to be recorded for raise climber

346 An employer must ensure that the following information is recorded for each inspection or examination of a raise climber under subsection 345(1) or (2):

(a) the dates the inspections and examinations are performed;

(b) the findings during the inspections and examinations; and

(c) any repairs and modifications,

and that the supervisor authorizing the repairs and modifications countersigns the record.

Major overhaul of raise climber

347 An employer must ensure a competent person performs a major overhaul on a raise climber at frequency recommended by manufacturer or a competent person, whichever is more frequent, and makes a record of the work carried out.

Hoist operator's duties

348 (1) An employer must ensure that a hoist operator performs the following duties:

(a) at the start of the hoist operator's shift,

(i) test for the satisfactory working conditions of the hoist brakes, and check safety devices, as recommended by the designer or manufacturer or as specified by an engineer, whichever is the more stringent,

(ii) test the holding capacity of any friction clutch, in accordance with a procedure for the hoist developed by the employer;

(b) test the overwind and underwind protective devices by operating the hoist into them, in accordance with a procedure developed by the employer

  (i) at least once every 24 hours, or more frequently if recommended by the designer or manufacturer or specified by an engineer, and

  (ii) after the hoist has been idle for over 48 hours, before using the hoist;

(c) remain at the hoist controls when the hoist is in motion under manual control;

(d) if any hoist is being manually controlled, during any absence of the hoist operator, set the brakes and controls so that at least 2 separate and distinct actions are required to put the hoist in motion;

(e) when a signal for hoist movement is given from controls at a shaft station, allow at least 5 seconds to elapse before moving the hoist;

(f) complete the hoist movement required by an executive signal unless there is a signal to stop or an emergency signal; and

(g) upon receiving the signal indicating that persons are entering or leaving the shaft conveyance, remain at the hoist controls unless advised orally by the person responsible for the shaft conveyance that hoist movement is not required; and

(h) give persons entering a skip an audible or visual signal that the control devices referred to in subsection 313(6) are set in operation.

(2) An employer must ensure that a hoist operator, in the performance of their duties under subsection (1), does not

(a) except in an emergency or when the hoist is being examined or maintained, communicate by voice when the hoist is in motion and under the hoist operator's manual control, if voice communication would decrease the ability of the hoist operator to operate the hoist adequately;

(b) operate the hoist to transport a person unless at least 2 brakes can be applied to stop the drum; and

(c) lower persons on a shaft conveyance that is supported by an unclutched hoist drum.

Hoist operators' record

349 (1) For each shift worked, a hoist operator must record in the hoist operators' record

(a) the hoist operator's actual starting and finishing time;

(b) the working condition of

(i) the brakes, including solenoids, clutches, and clutch brake interlocks,

(ii) the depth indicator,

(iii) the signal system,

(iv) the controls,

(v) the overwind and underwind devices,

(vi) the motors,

(vii) the devices referred to in subsection 312(6) that protect a shaft conveyance or counterweight from operating or being operated at an overspeed in excess of that for which the mine hoisting plant was designed and intended,

(viii) the track limits,

(ix) the emergency switch,

(x) the ammeter,

(xi) the speed indicator,

(xii) the loss of motion protection,

(xiii) the shaft obstruction indicator,

(xiv) the manual safety devices,

and any additional devices that could affect safe operations of the hoist;

(c) any instructions, except to raise or lower the hoist, given to the hoist operator affecting hoist operations;

(d) any unusual circumstances that occurred during the operation of the hoist and any action taken;

(e) the results of any tests performed on the hoist;

(f) any test trips; and

(g) any inadvertent stoppages.

(2) A hoist operator must review and countersign all entries in the hoist operators' record for the preceding 2 shifts.

(3) A person who issues any instructions to the hoist operator that affect hoist operations, except for instructions to raise or lower the hoist, must countersign the instructions in the hoist operators' record.

(4) Each working day, a supervisor responsible for a hoist must review and countersign the hoist operators' record for the preceding 24 hours that the hoist was operated.

(5) An employer must ensure that the hoist operators' record is kept in the hoistroom and that a hoist operator has access to the hoist operators' record.

(6) An employer must adequately repair any items listed in clause (1)(b) that are recorded by the hoist operator under clause (1)(b) as not being in adequate condition.

Duty not to interfere with hoist or hoist operator

350 (1) An employer must ensure that no person

(a) enters the hoistroom, unless authorized by the manager;

(b) operates or interferes with devices or controls for operating a hoist, unless authorized by the manager;

(c) speaks to the hoist operator while the hoist operator is operating the hoist on manual control, except in an emergency or when the hoist is being examined or maintained;

(d) unnecessarily distracts the hoist operator;

(e) is on a cage while it is being placed onto or removed from chairs;

(f) is in, on or under a shaft conveyance or counterweight that is supported by an unclutched drum unless the shaft conveyance or counterweight is secured in position during shaft sinking or preliminary development work;

(g) leaves a shaft conveyance that has inadvertently stopped at a point other than a shaft station, except upon instruction from a person authorized by a supervisor outside the shaft conveyance; or

(h) uses any chairs for landing a cage unless the signal for chairing is made and returned.

(2) An employer must ensure that a person is able to communicate with the hoist operator at any time

(a) in an emergency; or

(b) for essential operational requirements

and that the means of communication for the circumstances in clauses (a) and (b) are not used in any other circumstances.

(3) An employer must post a notice in a conspicuous place

(a) in the hoistroom warning that no person is permitted to speak to the hoist operator while the hoist operator is operating the hoist on manual control, except in an emergency or when the hoist is being examined or maintained; and

(b) immediately outside the hoistroom warning that no person is permitted to enter the hoistroom unless authorized by a manager.

Hoist not operated if object in shaft could be hazard

351 If an object that could be a hazard to the operation of a shaft conveyance or counterweight falls down a shaft, an employer must not permit the normal operation of a hoist in the shaft until

(a) a shaft inspection or a test run through the affected part of the shaft is made;

(b) any obstructions are removed from the shaft; and

(c) any damage affecting the operation of the hoist is repaired.

Repairs to a shaft

352 If repairs have been made to any part of a shaft, or if the hoist operator has reason to believe that there is damage to a shaft or obstruction to the free and normal movement of a shaft conveyance in a shaft, an employer must ensure that, before the hoist is returned to normal operation

(a) the shaft conveyance, unoccupied, successfully passes through the area of the shaft that has been repaired, or the area of the shaft that has any suspected damage or a suspected obstruction; and

(b) the shaft conveyance passes through the area of the shaft referred to in clause (a) for a second time with a competent person on board who inspects the area and records their findings.

Hoisting procedures

353 (1) An employer must develop procedures to be followed in operating a hoist if there is

(a) an emergency; or

(b) an inadvertent hoist stoppage.

(2) An employer must develop a procedure for removing persons from a shaft conveyance that stops inadvertently at a point other than a shaft station.

(3) An employer must develop a procedure for testing the holding capacity of any friction clutch.

Hoist operator available when persons underground

354 An employer must ensure that a hoist operator is available at a mine to manually operate an automatic hoist when persons are underground.

Designation of competent person for shaft conveyance

355 An employer must designate a competent person who is readily available to

(a) give audible signals to the hoist operator for hoist movement in accordance with these regulations;

(b) be responsible for shaft conveyances within a shaft;

(c) maintain discipline of persons riding in a shaft conveyance;

(d) enforce the load limits for a shaft conveyance; and

(e) inform the hoist operator of heavy loads or irregularly shaped loads on or under a shaft conveyance.

Hoist signal procedure

356 (1) An employer must ensure that signals for

hoist movement are only given by the hoist operator and a person designated to give signals for hoist movement under Section 355.

(2) If more than one signal is given within a sequence of signals, an employer must ensure that the persons referred to in subsection (1) give the signals in the following order:

(a) cautionary: indicates persons are entering or leaving the shaft conveyance or indicates a serious occurrence at the shaft;

(b) destination: indicates a specific location in or at the shaft to which a shaft conveyance is to be moved; and

(c) executive: to either stop the shaft conveyance or move the shaft conveyance in a specific direction, in a specified manner or speed.

(3) A signal for hoist movement must be given when the shaft conveyance or counterweight is at the same location as the person signaling, except during shaft sinking and preliminary shaft development or maintenance work in a shaft.

(4) No person is permitted to move a hoist on manual control unless

(a) the signal required under this Section is given;

(b) the signal is returned by the hoist operator, except in the case of a train as defined in subclause 7(cl)(iii); and

(c) at least 4 seconds elapse after the executive signal is given.

The intent of this is to have uniform signal procedures understood by all cage tenders and hoist operators at a mine. The return signal from the hoist operator may be broken up - for example - an allowable procedure for "hoist slowly" in 357(1) is: 3 signals by hoist operator/3 signals by cage tender; 3 signals by hoist operator/3 signals by cage tender; 2 signals by operator/2 signals by cage tender. (August 1, 2004)

Code of signals

357 (1) Unless another code of signals is approved by the manager, an employer must ensure

that the persons referred to subsection 356(1) use the following basic code of signals:

Activity	**Signal**
Stop immediately when shaft conveyance is in motion	1 signal
Hoist when the shaft conveyance is stationary	1 signal
Hoist slowly	3 signals, followed by 3 signals followed by 2 signals
Lower	2 signals
Lower slowly	3 signals, followed by 3 signals followed by 2 signals
Persons entering or leaving a shaft conveyance	3 signals
Release of shaft conveyance	5 signals
Chairing	1 signal, followed by 2 signals
Caution, blasting to take place	4 signals
Danger	9 signals

(2) If a code of signals other than the code specified in subsection (1) is used, the manager must communicate the code of signals to the persons who are designated to use it.

(3) If it is necessary for the operation of a shaft conveyance, an employer must establish signals, approved by the manager, in addition to those required under subsection (1).

(4) An employer must post in conspicuous places within every hoistroom and shaft station the code of signals and any signals used for hoist operators.

Transportation of equipment and supplies

358 (1) An employer must ensure that equipment or supplies that are within or being transported in a shaft are

(a) if in a shaft conveyance, adequately loaded and secured to prevent shifting;

(b) if secured to a hoisting rope of a shaft conveyance, secured to prevent damage to the hoisting rope and to allow the safety mechanisms of the shaft conveyance to operate; and

(c) if transported below the shaft conveyance or crosshead, suspended to prevent contact with shaft furnishings.

(2) An employer must ensure that a suspension system or arrangement used to transport equipment or supplies below a shaft conveyance or crosshead is capable of withstanding at least 4 times the maximum load without permanent distortion to any component of the system or arrangement taking into consideration all factors, including the requirements of subsection 326(3).

(3) An employer must obtain a certificate from an engineer certifying that a suspension system or arrangement used to transport equipment or supplies below a shaft conveyance or crosshead meets the requirements of subsection (2).

(4) An employer must ensure that the loading gate on equipment used to directly discharge material into a skip locks so that power is required to be applied to the loading gate's lock before the loading gate can open.

Procedures for safe operation of shaft conveyances

359 An employer must develop procedures for the safe operation of shaft conveyances and the procedures must specify the conditions under which persons may be transported in accordance with these regulations.

Transporting persons and materials together in shaft conveyance

360 An employer must ensure that no person is transported in a shaft conveyance

- (a) with explosives, unless
  - (i) the person is required for handling the explosives,
  - (ii) space is provided for the safety of the person, and
  - (iii) the total load on the shaft conveyance does not exceed 85% of its rated load as certified under clause 325(1)(b).
- (b) with supplies or rolling stock, unless
  - (i) the person is required for handling the supplies or rolling stock, or
  - (ii) the shaft conveyance is a multi-deck cage, and
    - (A) the materials are carried on a deck other than the top deck,
    - (B) the materials are adequately secured,
    - (C) the doors of the top deck are closed,
    - (D) the total load on the shaft conveyance does not exceed 85% of its rated load as certified under clause 325(1)(b), and
    - (E) the persons are carried on the top deck;
- (c) while the hoist that is raising or lowering the shaft conveyance is being used to transport ore or waste;
- (d) when personal hand tools or equipment are being transported, unless the tools or equipment
  - (i) are secured, and

(ii) the total load on the shaft conveyance does not exceed 85% of its rated load as certified under clause 325(1)(b);

(e) that is a cage, unless the cage doors are closed; and

(f) unless a person designated under Section 355 is present at the shaft conveyance.

Shaft conveyance required for vertical depth exceeding 100 m

361 An employer must provide a shaft conveyance for the raising and lowering of persons in a shaft that exceeds 100 m in vertical depth.

Code of practice required for shaft conveyance in non-vertical shaft

362 If a shaft is inclined at less than 22.5° from the horizontal, an employer who plans to use a shaft conveyance in the shaft must develop and submit to the Director, a written Code of Practice describing in detail how the shaft conveyance will be designed, constructed, operated and maintained.

Prohibition against shaft conveyance being inoperable

363 An employer must not render inoperable a shaft conveyance that is the only means of transportation to and from the underground if the shaft conveyance might be necessary for the evacuation of persons from the underground, other than persons working on the shaft conveyance, as long as the employer provides persons working on the shaft conveyance with an adequate means of exiting the underground in accordance with these regulations.

Closing off shaft for repair in shaft

364 When repair work is being carried out in a shaft, or at any other time when the shaft could be dangerous to a person entering it, an employer must limit entrance to the shaft by such means as closing doors or placing adequate barricades across the entrances to the shaft and post conspicuous warning signs at all entrances.

Design and procedures for work platform in shaft or raise

365 (1) A work platform, other than a shaft conveyance used as a work platform, that is used to transport or support a person performing work in a shaft or a raise, must be designed by an engineer in accordance with generally accepted engineering principles, and the manager must countersign the design.

(2) An employer must develop a procedure for the safe use of work platforms that are not shaft conveyances used as work platforms.

Part 11 - Blasting Operations and Storage and Handling of Explosives

Application of Part

366 This Part applies to

(a) blasting and the storage and handling of explosives underground at a mine; and

(b) magazines located on the surface that are associated with blasting underground.

Definitions

367 In this Part,

(a) "blasting accessories" means any devices used for initiating blasts;

(b) "blasting agent" means an explosive that

(i) is obtained by mixing an oxidizing agent with a carbon-containing substance, but in which none of the ingredients is an explosive, and

(ii) cannot be detonated by a single No. 8 detonator;

(c) "blasting agent truck" means a truck used for mixing, blending or carrying a blasting agent;

(d) "blasting cable" means a cable designed and used specifically for initiating a blast;

(e) "blasting machine" means an electrical or electro-mechanical device that provides electrical energy for the purpose of energizing electric detonators, but does not include batteries by themselves;

(f) "blasting meter" means a test instrument, such as a galvanometer, blasting ohmmeter, blasting voltmeter, blasting multimeter or equivalent device, used to check detonators and electrical blasting circuits for continuity, resistance, stray currents and other pertinent measurements;

(g) "blasting operation" means an operation using explosives or blasting accessories underground conducted from the time explosives arrive in an underground area to be blasted until all explosives are gone from the area;

(h) "blasting switch" means a device used to initiate a blast from a power supply;

(i) "bootleg" means a remnant of a hole after a blast and that has been determined not to contain any explosive after the blast;

(j) "cartridge" means a rigid or semi-rigid package of explosive enclosed in a waterproof wrapping or material;

(k) "danger area" means an area where there is a possible hazard to a person from fly rock or blasting fumes from a blast;

(l) "detonating cord" means an explosive core contained within a waterproof covering that, in order to be detonated, requires a detonator and fuse or an electric detonator to be attached to it;

(m) "detonator" includes

(i) electric blasting caps of instantaneous and delay types,

(ii) blasting caps,

(iii) detonating cord delay connectors, and

(iv) non-electric instantaneous and delay blasting caps that use detonating cords, shock tubes, gas tubes or replacements for electric leg wires, and any similar devices;

(n) "explosive" means a substance including gunpowder, propellant powder, dynamite, blasting agent, slurry, and water gel, that is made, manufactured or used to produce an explosion or a detonation, and includes a detonator or detonating cord;

(o) "extraneous electricity" means any source of electrical or electromagnetic energy with the capacity to cause the premature detonation of an explosive or detonator and includes a source of unwanted electrical current greater than 50 mA;

(p) "stemming" means an inert incombustible material used to confine or separate explosives in a drill hole.

Designation of blaster

368 An employer at a coal mine must designate at least 1 competent person as a blaster to perform the duties of a blaster in accordance with these regulations.

In order for the duties of a blaster to be performed, a person must be designated as a blaster in accordance with S.368. A supervisor who is suitably competent may be designated as a blaster. In some cases, the employer would require the supervisors to be designated as the principal blaster in order to be able to complete the functions required. (December 8, 2003)

Restricted to blasters

369 (1) No person other than a blaster is permitted to perform the duties of a blaster in accordance with these regulations.

(2) Despite subsection (1), for the purposes of training, a person who is not a blaster may perform the duties of a blaster under the constant, close, personal supervision of a blaster.

(3) An employer must ensure that no person other than a blaster

(a) primes an explosive;

(b) makes a connection that leads from a charge that contains a detonator to any device capable of initiating a blast;

(c) connects a delay or sequencing device or programs the delay or sequence for a blast; or

(d) initiates a blast.

Blaster to direct blasting operation

370 (1) An employer must ensure that a blasting operation is directed by a blaster.

(2) An employer must ensure that all persons within or adjacent to a blasting area comply with the directions given by a blaster directing the blasting operation.

(3) An employer must ensure that a blaster directing a blasting operation consults with each first-line supervisor responsible for any portion of the blasting area and any persons in the blasting area, so that all are made aware of the work being conducted in the blasting area.

(4) An employer and a blaster must ensure that no work of any type is conducted during a blasting operation that creates a risk of an accidental explosion.

(5) If more than 1 blaster is involved in a blasting operation, an employer must

(a) before beginning the blasting operation, designate 1 blaster as the principal blaster who has principal responsibility for the blasting operation;

(b) ensure that all persons in the blasting area are made aware of the identity of the principal blaster; and

(c) ensure that all blasters and supervisors performing or directing work in a blasting area consult sufficiently to coordinate the safety of the activity.

(6) An employer at a coal mine must ensure that a blaster does not initiate a blast unless the blaster has been authorized by the supervisor of the blasting area to initiate the blast.

Types of explosives

371 (1) An employer must ensure that an explosive is of Fume Class 1 rating as established by the Explosives Branch Regulatory Division of Natural Resources Canada.

(2) An employer at a coal mine must ensure that the only explosives used are those that are designed as, and declared by the Chief Inspector of the Explosives Branch of Natural Resources Canada to be, explosives permitted for use in a coal mine.

(3) Despite subsection (2), an employer at a coal mine may use explosives other than those required by subsection (2) if

(a) the material to be blasted is certified by a competent person to not contain coal;

(b) the employer develops, in consultation with a blaster, a procedure for safe blasting using the other explosives in material that does not contain coal; and

(c) the concentration of flammable gas is less than 0.5% by volume in the air being tested

(i) at the collar of each hole to be blasted, and

(ii) any area within 60 m of the area to be blasted.

(4) An employer must ensure that a copy of a procedure developed under clause (3)(b) is filed with the Director.

(5) An employer must ensure that only 1 brand of explosive, other than detonators, is used in a blasting operation.

(6) An employer must ensure that only 1 brand of detonator is used in a blasting operation.

(7) For greater certainty, a detonator may be of a different brand than the brand of the other explosive in a blasting operation.

General safety rules for using and handling explosives

372 An employer must ensure that

(a) frozen, time-expired, deteriorated or damaged explosives are used, stored, and disposed of in accordance with the manufacturer's recommended procedure;

(b) no person

(i) carries explosives in their clothing,

(ii) uses defective detonators or blasting accessories,

(iii) uses a safety fuse,

(iv) uses an explosive to blast or break up material if the heated condition of the material creates a risk of premature explosion of the charge, unless an employer develops a procedure, in consultation with a blaster, or

(v) heats an explosive above the manufacturer's recommended storage temperature; and

(c) cartons and wrappings are

(i) removed from the blasting area before a blast,

(ii) brought to the surface by the end of each shift, and

(iii) disposed of adequately.

Precautions around a magazine

373 An employer must ensure that

(a) mobile equipment is operated so as to minimize the possibility of hitting a magazine; and

(b) a clearly visible sign is placed adequately close to a magazine and the sign states a warning to the following effect: "**Danger: explosives. Do not fight a fire if there is imminent danger of the explosives catching fire. Instead, leave the area immediately**".

Where storage of explosives is not permitted

374 (1) An employer must ensure that explosives are not stored

(a) within 100 m of a

(i) transformer,

(ii) fueling station,

(iii) fuel oil storage area,

(iv) flammable material storage area,

(v) shaft station,

(vi) hoist room,

(vii) primary or auxiliary access,

(viii) lunchroom,

(ix) blasting area,

(x) refuge station, or

(xi) first aid station; or

(b) underground at a mine that ceases development or production for 60 days or more.

(2) At a coal mine, the only underground storage of explosives permitted is in a temporary storage box.

Explosives to be stored in magazine

375 An employer must ensure that explosives are kept or stored in a magazine, except when being

(a) transported to or from storage;

(b) used in a blasting operation;

(c) kept at a loading face in accordance with Section 376; or

(d) stored in a temporary storage box in accordance with Section 378.

Explosives kept at loading face

376 (1) An employer must ensure that

(a) the quantities of explosives intended to be used in a subsequent blasting operation at a loading face, but no more, are delivered to and kept at that loading face; or

(b) at a coal mine, such quantities of explosives as can be used in 1 shift at a loading face, but no more, are delivered to and kept at that loading face.

(2) An employer must ensure that explosives kept at a loading face are located so that

(a) there is no possibility of mobile equipment hitting them;

(b) they are unlikely to become overheated; and

(c) they are at least 10 m away from a detonator, except during priming and loading.

Guarding explosives at loading face

377 An employer must ensure that explosives kept at a loading face are continuously guarded by a person who is present with the explosives, or kept in a temporary storage box or blasting agent truck, until the explosives are used.

Magazines and temporary storage boxes

378 (1) An employer must ensure that a magazine or temporary storage box is

(a) used only for the storage of explosives;

(b) kept orderly, clean, and free of rubbish; and

(c) secured against theft, and locked when explosives are not being removed from or added to it.

(2) At a coal mine, an employer must ensure that any temporary storage boxes are returned to the surface at the end of a shift.

(3) An employer must ensure that

(a) detonators are kept and stored separately from other explosives;

(b) the floors and shelves of a magazine where nitroglycerine explosives are kept or stored are treated with a neutralizing agent to remove any traces of nitroglycerine; and

(c) the maximum quantity of explosives and detonators stored in a magazine does not exceed the quantity specified in the license issued for the structure pursuant to the *Explosives Act* (Canada).

(4) An employer must ensure that a working face is not located within 100 m of a magazine.

Placement of unattended magazine or temporary storage box

379 An employer must ensure that no temporary storage box that contains explosives is placed within 50 m of any magazine or any other temporary storage box containing explosives unless a blaster or person working under the direct supervision of a blaster stays with the temporary storage box.

Removal of explosives from magazine

380 (1) An employer must designate persons who may remove explosives from, or add explosives to, a magazine.

(2) Subject to subsection (4), an employer must ensure that only persons designated under subsection (1) remove explosives from, or add explosives to, a magazine.

(3) An employer must designate a competent person to

(a) control the inventory of explosives in a magazine;

(b) be responsible for a magazine; and

(c) be responsible for a temporary storage box

(4) The person designated under subsection (3) must ensure that

(a) subject to clause (b), explosives are issued only to persons who are designated to remove explosives; and

(b) detonators are issued only to a blaster.

(5) The person designated under subsection (3) must ensure that the oldest explosives in the magazine, if not defective, are issued first.

(6) An employer must maintain a list of persons designated under subsection (1), and make a copy of the list available to a person designated under subsection (3).

(7) An employer must ensure that the person designated under subsection (3)

(a) using an adequate device, tests each detonator for electrical continuity before issuing it and at least once a month; and

(b) receives and stores returned unused explosives.

(8) An employer must ensure that on a day that explosives are removed from or added to a magazine, a person designated under subsection (3) records

The employer is permitted to designate the blasters as those individuals who are designated to add or remove explosives and detonators from the magazine; receive and store unused explosives; control the inventory; and be responsible for a magazine and temporary storage box. (December 9, 2003)

A list of designated persons must be prepared and provided to all persons designated under this Section. As noted above, the employer is permitted to designate the current blasters and provide them with a copy of the list. (December 9, 2003)

(a) the name of the designated person who removed or added the explosives;

(b) the amount and type of the explosives removed or added;

(c) the current date;

(d) the location of the blasting area in which the explosives are or were to be used;

(e) the amount of explosives actually used in the blast; and

(f) the name of the blaster directing the blasting operation.

Return of explosives to magazine or temporary storage box

381 An employer must ensure that all unused explosives are returned a the magazine or temporary storage box at the end of a shift.

Report of theft or attempted theft of explosives

382 An employer must report any theft or attempted theft of explosives to the Director as soon as reasonably practicable.

Inspections and inventory of explosives is an important function. Every precaution must be taken to ensure that no explosives have been mislaid or lost, as they may be the cause of an incident. It is important that temporary storage boxes and magazines are in adequate condition for the storage of explosives. (December 9, 2003)

The countersignature signifies the manager's acceptance of the work. (December 9, 2003)

Inspections and inventory of explosives

383 An employer must ensure that a competent person

(a) conducts a weekly inspection of each magazine, temporary storage box and blasting agent truck to determine their condition;

(b) conducts a monthly inventory of the magazines, temporary storage boxes and blasting agent trucks to determine the amount, type and condition of the explosives contained in them; and

(c) records the results, countersigned by the manager, of an inspection or inventory conducted under clause (a) or (b).

Transporting explosives underground

384 (1) An employer must designate a competent person as responsible for handling and transporting explosives between the surface and underground storage.

(2) An employer must ensure that

(a) there is no undue delay when transporting explosives underground;

(b) explosives are transported underground

(i) in their original wrapping, and

(ii) in a temporary storage box, with adequate separation distances between temporary storage boxes; and

(c) detonators are transported underground in separate temporary storage boxes from other explosives.

Transporting explosives by shaft conveyance

385 If explosives are transported underground in a shaft conveyance, an employer must ensure that

(a) the person designated under subsection

384(1) informs the cage tender, deck person and hoist operator when explosives are being loaded on a shaft conveyance and about to be transported underground, immediately before transportation of the explosives commences;

(b) no other materials are transported with the explosives;

(c) detonators are carried on a separate shaft conveyance from other explosives; and

(d) explosives delivered to a shaft station are not left unattended.

Transporting explosives by mobile equipment

386 (1) An employer must ensure that any mobile equipment used for transporting explosives

(a) is adequate;

(b) has wood or other adequate non-sparking material covering all metal that could come into contact with explosives;

(c) is conspicuously marked with signs at the front, rear and sides, that state "**Explosives**"; and

(d) if it is mobile equipment capable of being operated independently of fixed rails, tracks or trolley beams, transports detonators with other explosives only if the detonators are

(i) 3000 or less in number; and

(ii) in a suitable temporary storage box in a compartment separate from the other explosives.

(2) An employer must not use mobile equipment that is used for transporting explosives for any purpose other than transport until the explosives are removed from the mobile equipment, except when mobile equipment is used in connection with the loading of holes.

(3) An employer must ensure that temporary

storage boxes that are being transported underground are secured so as to prevent any part of the load from being dislodged.

(4) If explosives are being transported by train underground, an employer must ensure that

(a) the explosives are not carried on the locomotive;

(b) detonators are carried in a separate car from other explosives;

(c) an empty mine car or a draw bar of a length at least equal to the length of a mine car separates the locomotive from a mine car carrying explosives; and

(d) an empty mine car or a draw bar of a length at least equal to a mine car separates a mine car carrying detonators from a mine car carrying explosives.

Stability of equipment in a blasting area

387 If equipment is located in a blasting area, an employer must take adequate precautions, including ensuring adequate traction and stability, to prevent toppling, sliding or other unplanned movement of the equipment.

Drilling while loading explosives or near loaded holes, misfires or bootlegs

388 (1) At a face where a blasting operation is being conducted, an employer must ensure that all holes are drilled before any holes are loaded with explosives.

(2) Despite subsection (1), a hole may be drilled in a manner inconsistent with subsection (1) if an employer develops a procedure for the drilling in consultation with a blaster if

(a) a blaster determines that a misfire cannot be more safely treated by other means than to drill an adjacent hole;

(b) the nature of the ground being drilled makes it necessary to load a hole immediately after it is drilled and to subsequently drill an adjacent hole;

(c) a hole loaded with explosives caves in and a blaster determines that the unexploded explosive cannot be reprimed or otherwise more safely treated, and it is necessary to drill an adjacent hole; or

(d) where holes have been loaded a face where a blasting operation is being conducted, and it is necessary to use a drill to remove obstacles from a previously drilled hole that does not contain explosives,

and must notify the Director any time the procedure is used.

(3) If the procedure referred to in subsection (2) is applied to the drilling of a hole, an employer must ensure that the details of the procedure and the reasons for its implementation are communicated to all persons in the blasting area.

(4) An officer may make an order suspending the application of the procedure referred to in subsection (2), and the suspension must remain in place until the officer notifies an employer that the suspension has been lifted.

(5) An employer must ensure that no hole is drilled within 15 cm of a bootleg.

Blasting operation in adjacent mines

389 (1) Before commencing a blasting operation, an employer must notify an employer in an adjacent mine that a blasting operation is pending.

(2) An employer in an adjacent mine who is notified under subsection (1) of a pending blasting operation must

(a) assess the potential for hazards in the adjacent mine;

(b) if a potential hazard in the adjacent mine is identified, take steps to eliminate it; and

(c) notify the employer at the mine where the blasting operation is taking place that the adjacent mine is clear of hazards.

(3) An employer must not proceed with a blasting operation before receiving notification from an employer in an adjacent mine as required by clause (2)(c).

Preparation of holes for loading explosives

390 (1) An employer must ensure that a blaster

(a) inspects and cleans a hole before an explosive is loaded in the hole; and

(b) immediately before loading a hole with explosives, examines the hole to verify that it has been thoroughly cleaned.

(2) An employer at a coal mine must ensure that a blaster when cleaning and inspecting a hole under subsection (1)

(a) uses a cleaner and detector that is capable of cleaning the full depth of the hole and detecting transverse and longitudinal cracks and crevices of 3 mm or more in width in the hole; and

(b) verifies that the hole does not intersect any cracks or crevices greater than 3 mm in width.

(3) A blaster must ensure that

(a) a hole is

(i) of sufficient size to permit the free insertion of the explosive to the full depth of the hole, and

(ii) at least 3 mm larger than the diameter of the cartridge of the explosive to be used; and

(b) any tool inserted in a hole loaded with explosives is made of wood or anti-static material

Cartridges

391 An employer and a blaster must ensure that primed cartridges are not transported, kept, stored or handled underground inside mobile equipment or near an electrical installation.

Procedure for use of explosives in coal mine

392 An employer must ensure that a procedure is developed in consultation with a competent person for the use of explosives in a coal mine, including specific steps to address the potential for an outburst of flammable gas.

Test for flammable gas at coal mine before loading explosives

393 (1) An employer must ensure that before any hole in a coal mine is loaded with explosives, a blaster tests for the concentration of flammable gas at the collar of each hole to be blasted and, subject to clause 371(3)(c), verifies that the concentration of flammable gas is less than 1% by volume in the air being tested.

(2) Immediately before initiating a blast, an employer must ensure that a blaster repeats the test in subsection (1) and tests the area within 60 m of the area to be blasted for the concentration of flammable gas, and subject to clause 371(3)(c), verifies that the concentration of flammable gas is less than 1% by volume in the air being tested

(3) An employer must ensure that no blast is permitted to be initiated at a coal mine

(a) in broken coal; or

(b) in an area where the concentration of flammable gas in the air exceeds 1% by volume in the air being tested.

Blast at coal mine prohibited until air free of dust

394 An employer at a coal mine must ensure that every machine capable of producing dust is stopped before a blast is initiated in order to allow the air to clear, and that no blast is initiated until the air is reasonably free of dust.

Removal of coal dust before initiating blast

395 An employer at a coal mine must ensure that a blaster, before initiating a blast, examines the area within 60 m of the area to be blasted to verify that excess coal dust has been removed and the area has been treated with stone-dust in accordance with Sections 182, 184 and 185.

Precautions when loading explosives in hole

396 (1) An employer and a blaster must ensure that

(a) explosives are primed before they are loaded as near to the hole as is reasonably practicable and only in a sufficient amount for the immediate work in progress;

(b) while explosives are being loaded in a hole, only persons required to be involved in the blasting operation are in the blasting area;

(c) detonators and other explosives are kept and handled separately until the last moment reasonably practicable before the blaster primes the explosive;

(d) no explosive is primed in a place where explosives are stored;

(e) an explosive that contains a detonator is not slit or tamped;

(f) the wrapping is not removed from a nitroglycerine-based product or a primed cartridge;

(g) no more explosives are loaded in a hole than the amount that is specified in the blast pattern and procedure required by subsection 398(1);

(h) a plug of stemming, consisting of an adequate amount of stemming material, is placed in the hole following the insertion of the last explosive;

(i) at a coal mine, a plug of stemming made with non-combustible material is placed in the deepest part of the hole before the charge is detonated; and

(j) a detonator is not tied in until the last moment before the blast.

(2) At a coal mine, after preparing holes but before loading them with explosives, a blaster must verify that all broken coal is removed from the area of the hole and must allow sufficient time for dust in the air to settle.

Pneumatically loading explosives in hole

397 (1) An employer and a blaster must ensure that if a hole is loaded pneumatically with an explosive

(a) only a semi-conductive hose manufactured for that purpose is used;

(b) the pneumatic loading equipment is capable of protecting against the hazards of extraneous electricity; and

(c) if an electrical detonator is used,

(i) no plastic or non-conducting liners are used in the hole, and

(ii) the detonator is not placed in the hole until the pneumatic loading of the hole is completed, unless a procedure for doing otherwise is developed by the employer, in consultation with the blaster

Development and production blast patterns and procedures

398 (1) An employer must ensure that development and production blast patterns and procedures for blasting are developed for every blast by a competent person in consultation with a blaster, and countersigned by the manager, that

- (a) indicate the type and quantity of explosives and stemming to be used in each hole;
- (b) indicate the expected resistance of each blasting circuit; and
- (c) include a list of steps to be followed when initiating a blast.

Standardized blasting patterns and procedures for development blasting and production blasting for the underground mining operation – such as development headings, raises, shaft sinking and production areas – are required. It is not necessary to produce a new blasting pattern for every blast underground and have it signed by the manager before the blast. However, any changes from the standardized blasting plan for the actual blast, must be recorded in the blaster's log book. (December 9, 2003)

(2) An employer must ensure that a blaster receives a copy of the blast pattern and procedure for blasting for each blasting area.

The blaster must receive a copy of the blast pattern and procedure, which can be standardized for blasting underground. If there are changes in the blasting patterns or procedures as a result of the implementation of a new blasting product and / or equipment, it is expected that the blaster will be given a copy of the change. If there is no change, it is not expected that the blaster would have to be given a copy of the pattern and procedure before each blast. (December 9, 2003)

Notification of first-line supervisor before blast

399 Before initiating a blast, a blaster must notify each first-line supervisor with responsibility for any portion of the blasting area, of a pending blast and give them adequate time to take the necessary precautions.

Such a procedure can be conducted by a supervisor, if designated as a blaster.

Danger Areas

400 (1) An employer must develop a procedure, including a list of steps to be followed for warning persons working in the danger area of a pending blast.

(2) An employer must ensure that a blaster, before initiating a blast, determines the size of the danger area and ensures that

(a) all persons are out of the danger area;

(b) the danger area, including all travelways to the danger area, is guarded by an adequate number of persons during a blast and who must remain at their locations until directed to leave by the blaster;

(c) the guards referred to in clause (b) prevent any person, other than a blaster, from entering the danger area until a blaster verifies that the area is safe to enter;

(d) adequate audible and visual warning is given in every direction of the danger area before initiating a blast;

(e) all machinery and equipment are clear of the effects of the blast; and

(f) all explosives not intended to be detonated are removed from the danger area.

(3) An employer must ensure that no person, other than a blaster, is permitted to enter an danger area until the person has been informed by a blaster or a person guarding the danger area that it is safe to do so.

Procedures for blasting more than one area from common source

401 If more than one area is blasted from a common source, an employer must develop, in consultation with a blaster, procedures for the multiple blasting that

(a) designate a blaster to initiate the blast;

and

(b) specify the procedure to be followed by the blaster to verify, before initiating the blast, that

- (i) all persons are out of the danger areas and the danger areas are guarded by an adequate number of persons in accordance with clauses 400(2)(b) and (c),

- (ii) in addition to the precautions specified in Section 400, adequate precautions against blasting hazards are taken to ensure the health and safety of persons elsewhere underground,

- (iii) the blaster has ensured that the placement of the charge is adequate, and

- (iv) the procedures for blasting required by Section 398 are adequately implemented.

Detonation of a single charge

402 Except as permitted in Section 403, a blaster at a coal mine must ensure that each hole of explosives is loaded separately and each charge is detonated singly.

Simultaneous detonation of multiple charges at coal mine

403 (1) At a coal mine, not more than 12 charges in a round may be detonated simultaneously using the same millisecond-delay detonators.

(2) At a coal mine, a round of charges using different millisecond-delay detonators must not be detonated unless

(a) the maximum time between the detonation of the first charge and the detonation of the last charge is

(i) 200 milliseconds, or

(ii) 750 milliseconds, if the charges are detonated in a travelway being developed underground that contains no seam of coal exceeding 300 mm and that is more than 5 m from a waste or fault; and

(b) the concentration of flammable gas in the general body of air in the area of the hole loaded with explosives and in any workplace within 30 m of the face does not exceed

(i) 1% by volume in the air being tested, if the time between the detonation of the first charge and the detonation of the last charge is calculated not to exceed 200 milliseconds, and

(ii) 0.8% by volume in the air being tested, if the time between the detonation of the first charge and the detonation of the last charge is calculated to exceed 200 milliseconds but not to exceed 750 milliseconds.

(3) A copy of the blast pattern for each area at which simultaneous detonation of multiple charges is carried out in a coal mine must be kept available on the surface for examination by employees.

Source for initiating blast

404 (1) An employer must ensure that blasting accessories used to initiate a blast are

(a) commercially manufactured for the purposes of blasting underground; and

(b) if used in a coal mine, certified by MSHA, CANMET or another agency acceptable to the Director.

(2) If using a blasting machine to initiate a blast, an employer must ensure that a blaster alone has possession and control of a blasting machine at all times during a blasting operation, except when the machine is

(a) secured so that no one else can take possession or control of it; or

(b) being repaired.

(3) If using a blasting cable to initiate a blast, an employer must ensure that the blasting cable is adequate and at least 30 m in length.

(4) An employer and a blaster must ensure that a blasting machine or blasting switch is

(a) constructed, operated, inspected, calibrated, maintained and dismantled in accordance with the manufacturer's specifications;

(b) tested, using methods specified by the manufacturer, before a blast that might require the maximum output of the machine or switch at least once a year;

(c) clearly marked with the capacity of the machine or switch;

(d) kept in adequate mechanical and electrical condition; and

(e) opened and repaired only by a competent person

and must keep a record of any work performed under this subsection.

Blasting switch

405 An employer and a blaster must ensure that a blasting switch is constructed so that

(a) it automatically opens the circuit by gravity and short-circuits the blasting conductor;

(b) the live side is within a fixed locked box and accessible only to the blaster;

(c) the door of the fixed locked box is arranged so that it cannot be closed or locked unless the contact of the device are open and the short-circuiting device is in place; and

(d) if the power source for the blasting switch is supplied from circuits of 300 v or greater, it is electro-magnetically operated.

Defective blasting machine or blasting switch

406 If a blaster has reasonable grounds for believing that a blasting machine or blasting switch is defective, the blaster must

(a) withdraw it from use immediately;

(b) ensure that it is returned to the surface from underground; and

(c) provide an immediate report to an employer respecting the defective machine or switch

and must keep a record of the work performed under this subsection.

Testing of electric detonators

407 An employer must ensure that a blaster, before initiating a blast, ensures that electric detonators to be used in the blast

(a) are tested at the blasting area with a blasting meter for electrical continuity;

(b) are shunted or short-circuited after being tested under clause (a) until they are connected in circuits;

(c) have the leg wires shunted or short-circuited after they are tested under clause (a) and that the short circuit or protective shunt is not removed from the leg wires until final connections are made; and

(d) are not used if there is a danger from extraneous electricity.

Testing of electric blasting circuit

408 (1) An employer and a blaster must ensure that an electric blasting circuit is tested with a blasting meter for electrical continuity and resistance

(a) before connecting the electric blasting circuit to the lead wires; and

(b) before connecting the lead wires to the power source for a blast.

(2) If the blasting circuit referred to in subsection (1) is not electrically continuous, or if the resistance is not as specified in the procedures under subsection 398(1) developed when the blast was planned, the blast must not be initiated until the blaster is satisfied that the blast can proceed adequately.

Blasting cables

409 (1) A blaster must ensure that blasting cables

(a) do not come in contact with detonating cords;

(b) do not come closer than 30 cm to

(i) metal surface directly involved in the blasting operation,

(ii) pipes, rails or other continuous metal grounding circuits, or

(iii) power, lighting or communication cables;

(c) are isolated from the ground; and

(d) are visibly different from other cables.

(2) A blaster must ensure that the ends of the blasting cables closest to the blasting machine leading to the blasting area are shunted or short-circuited while the leads from the electric blasting caps are being connected to each other and to the blasting cables.

(3) A blaster must ensure that the danger area is secured in accordance with Section 400 before removing the shunt or short-circuit required by subsection (2).

(4) If a blasting cable used in one area is used in another area, a blaster must ensure that adequate precautions are taken to ensure that the blasting cable being used in the second area has no electrical connection to the first area, unless both areas are blasted in one blast.

Electrical storms

410 An employer must ensure that no electrical blasting circuit connections are made on or near to the surface at a mine, or in or near to a shaft, when there is an electrical storm in the vicinity.

Radio transmitters

411 An employer and a blaster must ensure that electric detonators are not used for initiating a blast unless radio transmitters within 30 m of the blasting circuit are turned off.

After blast

412 (1) After a blast is initiated, the blaster who initiated the blast must ensure that

(a) if blasting cables were used, that they are disconnected from the blasting machine or blasting switch box and short-circuited or shunted immediately after the blast is initiated; and

(b) if a blasting switch was used, that it is locked in the open position.

(2) After a blast is initiated, a blaster must make an examination of the effect of the blast before the next blast is initiated.

(3) At a coal mine, a blaster must test for flammable gas within 60 m of the area that was blasted as soon as reasonably practicable

after the expiration of any required waiting periods as referred to in subsection 414(1).

Entering danger area after blast

413 (1) A blaster must ensure that all persons, including blasters, remain outside the danger area for at least 15 minutes after the last blast.

(2) No person, other than a blaster is permitted to enter a danger area where a blast has been initiated until a blaster inspects the area of the blast and determines that it is safe to enter.

Entering danger area when misfires and suspected misfires

414 (1) If a charge misfires or is suspected of misfiring, a blaster must ensure that

(a) all persons in the blasting area of the misfire are informed of the misfire;

(b) all persons, including blasters, remain outside the danger area for at least 30 minutes after the last charge was due to explode;

(c) persons be permitted to enter the blasting area of the misfire only in accordance with the procedure referred to in subsection 415(1); and

(d) until the hazards are eliminated, no work is conducted in the blasting area of the misfire other than the work required to dispose of or recover the misfire.

(2) No person is permitted to use metallic equipment in the blasting area of a misfire until

(a) a blaster has inspected the blasting area and authorized the use of the equipment in accordance with the procedure referred to in subsection 415(1);

(b) the blasting area is adequately

illuminated;

(c) the work is directly and constantly supervised by a blaster; and

(d) precautions are taken to prevent injury from accidental explosion.

Procedure for safe handling of misfires

415 (1) An employer must develop, in consultation with a blaster, a procedure for the safe handling of misfires that includes detailed sequential instructions.

(2) If a misfire is found, a blaster must

(a) follow the instructions in the procedure referred to in subsection (1); and

(b) inform the first-line supervisor for the area where the misfire was found.

(3) On expiration of the time required under clause 414(1)(b), a blaster must enter the blasting area of the misfire, inspect the site and approach the misfire or suspected misfire to assess the potential hazards.

(4) An employer must take reasonable steps to establish the cause of a misfire and must take corrective action to prevent a recurrence.

(5) If a misfire is not disposed of or recovered, a blaster must ensure that

(a) barricades are installed to prevent persons from entering the danger area; and

(b) a warning sign is posted in a conspicuous place on each barricade referred to in clause (a) indicating

(i) that there is a misfire, and

(ii) that all persons are to keep out until the misfire is disposed of or recovered.

Report of misfire not disposed of or recovered by end of shift

416 If a misfire is not disposed of or recovered by the end of a shift, the first-line supervisor of that shift must report the fact, together with the location of the misfire, to the supervisor on the incoming shift who is assigned responsibility for the corresponding area of the mine, before work is commenced by the mine workers on the incoming shift.

Record of misfire

417 An employer must ensure that when a misfire occurs a record is made of the

(a) date of the misfire;

(b) location of the misfire;

(c) number of holes affected by the misfire; and

(d) disposal or recovery of the misfire.

Flamed charge at a coal mine

418 In a coal mine, if a charge flames on detonation, an employer and blaster must, in the following sequence:

(a) immediately take steps to extinguish the flame; and

(b) verify that the section of the coal mine in which the charge was detonated is guarded by a person and left unworked, except for making the section safe, until inspected by a mine examiner.

Report of flamed charge at coal mine

419 (1) After complying with Section 418, a blaster must

(a) without delay, verbally report the flamed charge to the blaster's supervisor or the coal mine underground manager; and

(b) report, in writing, the flamed charge to the blaster's supervisor or the coal mine underground manager.

(2) An employer must ensure that a flamed charge is treated under the direction of a blaster at a time and in a manner that is safe and adequate, so as to ensure the removal of all hazards caused by the flamed charge.

(3) A supervisor who is informed of a flamed charge in accordance with subsection (1) must, without undue delay, report the flamed charge to the coal mine underground manager and the manager.

Examination of working face for misfires, bootlegs or remnants of explosives after a blast

420 (1) An employer must ensure that before drilling, sampling or similar work is commenced on a working face after a blast, a competent person examines the working face for misfires, bootlegs, or remnants of explosives.

(2) If a misfire is found, an employer must

ensure that the procedure required by Section 415 is followed before drilling commences.

Secondary blasting

421 An employer must develop a procedure for secondary blasting if explosives are used to reduce oversize materials to the dimensions required for subsequent handling and crushing.

Abandonment or discontinuation of work

422 An employer must not discontinue work in or abandon for more than 10 days any blasting area, until

(a) the material broken at the initiation of the last round of blasts is cleared from the area of the mine that was blasted; and

(b) the whole face of the blasting area is examined for remnant explosives, misfires or bootlegs.

Blaster's record

423 (1) At the end of a blaster's shift, the blaster must create a record of the preparation and initiation of all blasts that the blaster was responsible for during the shift, including

(a) the name of the employer and the mine;

(b) the number of detonators received, used and returned;

(c) the amount of explosives taken into each section, used and returned;

(d) the date, shift and time of initiation of the blast or round of blasts;

(e) the location of the blasts;

(f) at a coal mine, the results of the tests taken pursuant to Section 393, and the results of tests taken pursuant to subsection 412(3) after each blast or

The completion of blasting logs is an important responsibility for the blaster on the use and handling of explosives at the workplace. (December 9, 2003) round of blasts, where applicable;

(g) the number of detonators used;

(h) the amount of explosive used, expressed in grams or ounces;

(i) the number of misfires and whether they were recovered;

(j) the number of flamed charges;

(k) details of any flamed charges or misfires;

(l) drilling and loading data;

(m) a sketch of the loading pattern;

(n) the maximum weight of explosives per delay;

(o) the delay pattern;

(p) the initiation method;

(q) period numbers;

(r) the resistance of each series measured in Ohms;

(s) the resistance at each blasting machine measured in Ohms;

(t) the type of warning signal used;

(u) confirmation that accesses to danger areas were guarded;

(v) any dangerous conditions found during an inspection, after the blast; and

(w) the blaster's signature.

(2) An employer must ensure that a blaster keeps an up-to-date record in accordance with subsection (1).

(3) A blaster must keep the record required by subsection (1) for 3 years after the blast, and must have the record available for inspection by an officer and an employer.

(4) At least once a month, a blaster's supervisor must review and countersign the entries made

in the record required by subsection (1).

Part 12 - Job Training Program

Definitions

424 In this part

(a) "hours", in relation to training, teaching experience, work experience or the duration of a course, means hours that are actually spent in the training, teaching, work, or course;

(b) "job training program" means program comprising series of courses provided by an employer to employees in order to ensure that employees are competent to perform work in the job categories to which they are designated or work to which they are assigned .

Employer required to develop and maintain job training program

425 (1) An employer must develop, and provide a job training program for a mine that is adapted to the circumstances and conditions of the mine and that

(a) includes courses that incorporate the training required for each job category listed in Section 440 and any additional training required by that Section;

(b) includes an annual refresher course as required by Section 447;

(c) includes training on all procedures required by these regulations as required by Section 25;

(d) is developed in accordance with and conforms to the requirements of the American National Standards Institute Standard Z490.1 2001 "Criteria for Accepted Practices in Safety, Health, and Environmental Training", or an equivalent standard;

(e) provides details of

(i) who is to be trained,

(ii) how training will be carried out,

(iii) when training will be carried out,

(iv) the type of training that is required, and

(v) who will provide the training, including any contractors; and

(f) subject to Section 445, provides details of the training required before a mine worker is allowed to do work in the absence of a supervisor, for which the worker has not been previously trained;

(2) An employer may contract out the development or provision of a job training program.

(3) A session of less than 30 consecutive minutes is not considered training for the purpose of a job training program.

Employer to review job training program

426 (1) An employer must review their job training program at least once every 3 years, or more often if

(a) there is a change in work conditions including

(i) the introduction of alternative mining methods,

(ii) the introduction of different equipment, or

(iii) a change in work procedures; or

(b) required by law.

(2) An employer must maintain documentation on site that demonstrates that the job training program has been reviewed in accordance with subsection (1).

(3) If the documentation required by subsection (2) is not available, the job training program will be suspended, effective immediately, without notice from the Director.

Examination, audit, or inquiry into job training program

427 (1) The Director may cause an examination, audit or inquiry into a job training program to be carried out, and may require that the examination, audit, or inquiry be carried out by an appropriate professional or occupational body, or other association.

(2) A person carrying out an examination, audit or inquiry under subsection (1) must be provided with any information or explanation that the person requires by

(a) the employer providing the job training program;

(b) every employee of the employer providing the job training program; and

(c) every person employed in the operation of the job training program.

(3) A person carrying out an examination, audit or inquiry under subsection (1) must have free access, at all reasonable times, to the files, records, books of account and other documentation in whatever form, relating to the job training program.

(4) The costs of an examination, audit or inquiry into a job training program made under subsection (1) must, if the Director so orders, be paid by the employer providing the job training program.

Evaluation of job training program by Director

428 The Director may order an employer to provide the Director with any information the Director may require for the purpose of evaluating a job training program or the competence of any or all of its participants.

Maintenance of records of job training program

429 (1) An employer must keep and maintain a copy

of the job training program at the mine or other location acceptable to the Director for the life of the mine plus 2 years.

(2) An employer must keep and maintain at the mine or other location acceptable to the Director

(a) a file for each student in the job training program, including

(i) copies of certificates or diplomas earned by the student prior to participation in the program,

(ii) a work history record,

(iii) a listing of the prerequisite or entrance requirements that the student has met for entry into a course or courses,

(iv) results of exams and results of assignments completed,

(v) a description of the training undertaken and experience gained by the student in the program,

(vi) attendance records for each course showing the student's attendance record,

(vii) a record of the services performed by the student, other than as experience within a course required for a job category,

(viii) a record of the successful completion of the courses required for a job category signed by the person who has determined the successful completion and countersigned by the student who has successfully completed the course or courses; and

(b) all documents relating to the delivery of the job training program, other than student records.

(3) An employer must keep and maintain the documents in a student file referred to in clause (2)(a)

(a) if the student is subsequently employed at the mine, during the period of employment and for at least 2 years after the end of the period of employment; or

(b) if the student is not subsequently employed at the mine, for at least 2 years after the student has completed or left the course in which the student was enrolled.

(4) After the 2-year retention period specified in clause (3)(a) or (b), or in the event of closure of the mine or the cessation of a course required for a job category, the documents referred to in clause (2)(a) must be mailed to the former student at their last known address unless the Director otherwise orders.

Employer at coal mine to file annual summary of job training program

430 An employer at a coal mine must prepare and file with the Director an annual summary of training carried out as part of the job training program including, for each course delivered in the year,

(a) the dates delivered;

(b) the instructor;

(c) the subject matter;

(d) the location;

(e) the name of each student in attendance; and

(f) the mark for each student on every exam or assignment.

Working committees to advise Director

431 The Director may establish, at the expense of an employer, working committees to advise the Director on matters relating to the employer's job training programs, and such other matters as the Director determines.

Suspension of or imposition of conditions on job training program

432 (1) The Director may suspend or impose conditions on a job training program by giving written notice of the suspension or imposition of conditions, including the reasons for the suspension or imposition of conditions and the effective date of suspension or imposition of conditions, to the employer providing the job training program if, in the opinion of the Director,

(a) there are insufficient or inadequate accommodations, facilities, equipment or materials to deliver the courses of the job training program;

(b) the instructors employed for the job training program do not meet the requirements set out in these regulations;

(c) conditions or requirements imposed by the Director are not complied with;

(d) false information is furnished to the Director; or

(e) the employer fails to comply with the requirements of this Part or any other law integrally related to the job training program.

(2) If a job training program is suspended pursuant to this Section, the employer providing the job training program must not, as long as the suspension remains in effect, provide the suspended job training program.

(3) An employer must comply with any conditions imposed on the job training program pursuant to this Section.

(4) Any decision of the Director to impose conditions on, or suspend a job training program may be appealed pursuant to Section 69 of the Act.

Notice for job training program for a coal mine

433 An employer at a coal mine who files a notice pursuant to clause 29(1)(d) that they intend to develop or construct a mine, or re-enter a mine that ceased development or production for 60

consecutive days or more, must file with the Director a notice in relation to the job training program that

(a) identifies the employer and any contractors who will provide the job training program and provides their contact information;

(b) identifies the person responsible for the job training program and provides their contact information;

(c) identifies the person who is designated to make decisions and provide information to the Director on the job training program, and provides their contact information;

(d) includes a copy of the list of officers and directors filed with the Registry of Joint Stock Certificate for the employer and any contractor;

(e) identifies any other person not disclosed in the list of officers and directors filed with the Registry of Joint Stock Certificate who has a financial interest or exercises control or direction over the job training program;

(f) lists the courses that will be required for each job description;

(g) lists any approvals required pursuant to any enactment or from any professional, occupational or other association connected with the proposed job training program;

(h) includes an explanation of how the training requirements for each job category are appropriate for the mining methods and technology of the mine; and

(i) includes copies of any executed contracts between any service provider and the employer in relation to the job training program.

External review of job training program for a coal mine

434 (1) An employer at a coal mine must, at the employer's expense, have the course materials for each course in the job training program reviewed by

(a) 1 mining industry association; or

(b) 2 separate arm's-length mining industry representatives.

(2) When providing course materials for external review an employer must include

(a) the information required by clauses 433(a), (b), (c), (d), (f) and (g).

(b) all information referred to in subsection 435(1).

(3) The persons or association performing an external review under subsection (1) must attest to having reviewed the course material and other information and provide written opinions on whether

(a) the training objectives of each course for a job category required by these regulations are appropriate for skills and duties for the job category;

(b) the courses required for each job category provide an adequate level of training for the job category;

(c) the course length is appropriate for the skills required;

(d) the course entrance requirements meet industry standards; and

(e) the instructional methods are appropriate for satisfactory job training program delivery;

and must provide detailed reasons relating to any opinion that rates any aspect of the job training program as inappropriate or less than satisfactory.

Course information filed for program delivered by employer at a coal mine

435 (1) At least 90 days before a job training program is first provided, an employer at a coal mine must file with the Director the following information for each course in the job training program:

(a) the course name and a description of the course, including

(i) its duration,

(ii) the delivery format, and

(iii) a list of books, supplies, equipment, and materials that will be used;

(b) the designated job category and the job description for which the course is required training;

(c) the prerequisites required for the course;

(d) the training objectives of the course;

(e) the name of any consultant or advisory committee members who developed or assisted in developing the course;

(f) a subject and module outline for the course;

(g) the instructor or instructors designated to deliver or assist with the course and information about each instructor including

(i) the instructor's name and contact information,

(ii) the proposed start date of the instructor's part of the course,

(iii) the instructor's role in the course,

(iv) the educational background of the instructor,

(v) the teaching experience of the instructor,

(vi) the practical experience of the instructor, and

(vii) a copy of any post-secondary degrees, certificates or licenses held by the instructor and a current resume;

(h) the maximum student to teacher ratio;

(i) the performance outcomes, including the method of evaluation and results that must be achieved by a person to successfully complete the course;

(j) an indication of whether or not any experience, work placement or off-site training is required by the course and what any experience, work placement or off-site training includes;

(k) if the facility is owned and operated by the employer, identification of the premises to be used for the course, including

(i) the maximum person capacity of the floor area available for instruction, including classroom and any laboratory or shop areas, and

(ii) a copy of the occupancy permit from the local municipality;

(l) copies of all executed contracts, agreements or undertakings entered into in establishing, making or delivering the course; and

(m) a copy of the written opinions required by subsection 434(3) report from the most recent external review of the course.

(2) Despite subsection (1), if a course in a job training program is delivered by

(a) a private career college within the meaning of the *Private Career Colleges Regulation Act*;

(b) an institution authorized to grant degrees or to provide a program of post-secondary study leading to a degree under the *Degree Granting Act*; or

(c) a community college governed by the *Community Colleges Act*,

an employer is not required to file the information specified in subsection (1) with respect to that course.

(3) A filing made under subsection (1) must include evidence that is satisfactory to the Director that

(a) the employer is able to comply with the requirements for a job training program as prescribed by these regulations;

(b) the employer has obtained any approvals required pursuant to any enactment or from the appropriate professional, occupational or other associations connected with the proposed job training program;

(c) the premises, equipment and other facilities used in the provision of an employer provided job training program comply with industry standards and with all applicable building, fire, health, sanitation and safety laws.

Instructors for job training program for a coal mine

436 (1) This Section applies to job training programs for coal mines only.

(2) An employer must designate persons as instructors for the courses comprising a job training program, and only persons designated as instructors may instruct in a job training program.

(3) Before being designated as an instructor in an employer provided job training program, a person must

(a) possess a bachelor's degree from a Canadian university, or an equivalent degree from a university outside of Canada, in a subject directly related to the course to be taught, and have 12 months of job experience in the subject of the course to be taught;

(b) be a graduate of a program from the community college established under the *Community College Act*, or an equivalent institution outside Nova Scotia in a subject directly related to the course to be taught, and have 24 months job experience in the subject of the course to be taught;

(c) be a graduate of a program from a college or a trade or vocational school registered in Nova Scotia, or an equivalent institution outside of Nova Scotia, in a subject directly related to the course to be taught, and have 24 months job experience in the course subject to be taught;

(d) possess a Bachelor of Education degree or a valid Nova Scotia teacher's licence and have 24 months job experience in the course subject to be taught; or

(e) have 60 months job experience in the course to be taught.

(4) Despite subsection (3), an employer may file with the Director a request to employ a person who does not have the qualifications prescribed in subsection (3) and the Director may accept the request if the Director is satisfied that the person is otherwise qualified to instruct or meets the requirements stated in another relevant Act or by a relevant industry body.

(5) No employer is permitted to employ an instructor to deliver a course in a job training program who does not have the qualifications or experience prescribed in subsection (3) without obtaining the prior written acceptance of the Director pursuant to subsection (4).

(6) An instructor who does not possess a minimum of 1000 hours of teaching experience must

(a) enroll in an instructional methods or train-the-trainer program in their first year as an instructor in a job training program;

(b) before starting to instruct in a job training program, provide the Director with written verification of enrollment in the instructional methods or train-the-trainer program required by clause (a); and

(c) within 2 years of starting to instruct in a job training program, unless the Director grants a longer time, provide proof of completion of the instructional methods or train-the-trainer program required by clause (a).

(7) A guest lecturer or workshop leader is not required to meet the requirements of this Section if delivering course material that is less than 8 hours in duration.

(8) No employer is permitted to start a job training program unless instructors are designated for the required courses for all job categories.

Review of proposed job training program by Director

437 (1) After reviewing the materials filed pursuant to Sections 433 and 435, the Director may

(a) accept the job training program;

(b) accept the job training program with any conditions as the Director considers necessary;

(c) require changes in the job training program; or

(d) refuse to accept the job training program.

(2) An employer must comply with any conditions imposed on the job training program by the Director.

(3) The Director may refuse to accept a job training program if

(a) the information supplied is incomplete;

(b) the Director is not satisfied that the employer has complied with the Act or these regulations;

(c) the employer has failed to comply with any conditions imposed pursuant to the Act or these regulations;

(d) the employer previously refused to comply with an order or directive of the Director pursuant to this Part or any other law integrally related to the job training; or

(e) the Director determines that the job training program is not adequate to achieve the necessary learning objectives.

(4) An employer at a coal mine must not provide a job training program unless the Director accepts the job training program.

Employer offering job training program to other mine

438 No employer is permitted to deliver or sell a job training program to another mine without first

(a) filing notice with the Director in writing of their intention to deliver or sell the job training program;

(b) submitting the fee in Schedule A; and

(c) receiving the Director's permission to deliver or sell the job training program.

Written job descriptions required and available

439 (1) An employer must prepare a written job description for each job category of employee at the mine that states the duties and responsibilities of the employees designated to the job category, including, but not limited to, those duties and responsibilities pertaining to health or safety.

(2) An employer must give each employee and the committee or representative, if any, a copy of the job description for the employee's job category.

(3) An employer must make a copy of each job description available for viewing at the mine.

Training courses required in job training program

440 (1) The following job categories at a mine require training:

(a) mine worker;

(b) supervisor;

(c) mine rescue worker;

(d) hoist operator, if the mine has a hoist;

(e) blaster, if explosives are used at the mine; and

(f) mine surveyor.

(2) In addition to the job categories listed in subsection (1), training is required for the following at a mine:

(a) committee membership or acting as a representative; and

(b) the specific tasks carried out by mine workers and persons permitted to work underground by subsection 445(4).

(3) In addition to the job categories listed in (1), the following job categories at a coal mine require training:

(a) manager;

(b) underground manager;

(c) coal mine electrician;

(d) coal mine mechanic; and

(e) mine examiner.

Task specific training

441 (1) The task-specific training referred to in clause 440(2)(b) must, for a mine worker, include

(a) health and safety aspects and safe operating procedures for tasks and equipment;

(b) supervised practice of all major tasks during non-production;

(c) supervised performance of tasks during production and non-production;

(d) health and safety hazards of new or modified equipment,

and such other training the manager or Director may require.

(2) If a job description prepared under subsection 439(1) requires an employee who is not a mine worker to work underground on a regular basis, the employee must be trained

in accordance with section 446.

List of mine workers and designations, tasks, and positions

442 (1) Before the start of mining an employer must make a list of all mine workers that includes

(a) all of the designations that are held by each mine worker required by these regulations;

(b) all tasks that are assigned to each mine worker; and

(c) any other positions held by each mine worker.

(2) An employer must ensure that the list required by subsection (1) is maintained and kept at the mine.

Employees to be trained in accordance with job training program

443 An employer must ensure that all employees, including the employees of any contractors at the mine, are trained to perform their duties in accordance with the employer's job training program.

Designating employee who has not completed courses for job category

444 (1) An employer may designate an employee to a job category listed in Section 440 without the employee having completed the courses required for the job category if the employee has passed all examinations normally required as part of the courses required for that job category.

(2) For the purpose of subsection (1), "courses" does not include an annual refresher course required by Section 447.

This Section permits the assessment of competency of employees and their designation to job classifications without additional training

No untrained persons working underground

445 (1) Except as permitted in subsection (2), (4), or (5), a person must not work, and an employer must ensure that a person does not work, underground at a mine, unless the person

(a) has completed the training for mine workers;

(b) has completed the courses required for the type of mine and for the tasks to which the person is assigned at the mine and any additional course of study or training required by any regulations; and

(c) is designated as a mine worker.

(2) A person who has not completed the task-specific training for a task the person will be performing at a mine, but has completed the training for mine workers, is permitted to work underground at a mine, provided that the person remains under the constant close personal supervision of a competent person who has completed the courses required for that mine and for the task and has experience in the performance of the task.

(3) An employer must ensure that a person who has failed an examination that is part of the courses required for a job category listed in subsection 440(1) or (3) does not perform work in the job category for which the examination was taken.

(4) A person who does not normally work underground, and who does not normally perform work integral to the normal operation of the mine, is permitted to work underground under the constant close personal supervision of a competent person who has completed the courses required for that mine and is knowledgeable about the hazards and emergency response procedures for the mine.

(5) A person may work underground for a limited time for the purpose of completing a portion of the job training program while under the constant close personal supervision of a competent person.

Training for mine workers

446 The training for a mine worker must include

- (a) at least 30 hours of training, at least 8 hours of which are underground;
- (b) an introduction to the Internal Responsibility System as described in the Act and the rights and responsibilities of employees, supervisors, and the committee or the representative, if any, under the Act or these regulations;
- (c) an introduction to these regulations as they pertain to the work of the person taking the training;
- (d) an explanation of the authority and responsibility of supervisors;
- (e) an introduction to the employer's health and safety rules;
- (f) a tour of the underground;
- (g) an orientation to the mine;
- (h) an introduction to the work environment, including observation of and an explanation of the methods of mining utilized at the mine;
- (i) an explanation of how to enter and leave the mine;
- (j) an introduction to personnel transportation;
- (k) an introduction to procedures for communication of information;
- (l) an explanation of the mine plan;
- (m) an explanation of emergency evacuation and recognition of the alarm system;
- (n) an introduction to barricading;
- (o) an introduction to fire-fighting, including instruction in the use of fire-extinguishing equipment;

(p) an introduction to ground control procedures;

(q) an introduction to ventilation plans and procedures;

(r) an introduction to occupational health, including dust and noise;

(s) an explanation of cleanup and general rules;

(t) an introduction to stone-dusting, if applicable to the mine;

(u) an introduction to hazard recognition and avoidance;

(v) an introduction to hazards related to explosives;

(w) an introduction to electrical hazards;

(x) an explanation of procedures for reporting hazards;

(y) an explanation of first aid resources at the mine;

(z) an introduction to mine gases and environmental monitoring;

(aa) an introduction to duties and responsibilities of a mine worker in the event it is necessary to implement the emergency preparedness program required by subsection 125(1);

(ab) an identification of escapeways;

(ac) training in the use of a self-rescuer and introduction to the use of a self-contained breathing apparatus;

(ad) an introduction to health and safety aspects of and any procedures related to the tasks to which the person will be assigned, and

and any additional training required by the manager or the Director.

Annual refresher course for mine workers

447 (1) An employer must provide an annual refresher course for mine workers of at least 6 hours duration, that includes

(a) the Internal Responsibility System and rights and responsibilities of employees, supervisors and the committee or representative, if any, under the Act or these regulations;

(b) these regulations as they pertain to the work of the mine worker taking the training;

(c) mandatory health and safety standards;

(d) transportation controls and procedures for communication of information;

(e) ground control;

(f) escapeways, prevention of accidents and access to first aid facilities;

(g) use of a self-rescuer and self-contained breathing apparatus;

(h) mine gases, environmental monitoring and how to ensure that monitoring equipment is not interfered with;

(i) fire-fighting, including training in the use of fire-extinguishing equipment;

(j) duties and responsibilities of a mine worker in the event it is necessary to implement the emergency preparedness program required by subsection 125(1);

(k) refresher training required by the Act or any regulations under the Act,

and additional training required by the manager or Director.

(2) A mine worker must complete, and an employer must ensure that a mine worker completes, the annual refresher course required by subsection (1) once every 12 months.

(3) In addition to the annual refresher course required by subsection (1), the refresher training of each mine worker in a coal mine must include tests carried out at least 4 times a year at regular intervals for proficiency in fire-fighting procedures.

Training for mine rescue worker

448 The training for a mine rescue worker must include

(a) at least 72 hours per year, including the sessions required by clause (b), in mine rescue procedures spread over a minimum of 12 days and with not more than 3 months between each session; and

(b) at least 2 sessions per year in mine rescue procedures carried out underground or in simulated underground emergency conditions, with not more than 8 months between each underground or simulated underground session.

This means a minimum TOTAL training time of 72 hours including the underground sessions.

The training must occur on a minimum of 12 separate days (8 hours/day for 9 days is not permitted for example). Also no two consecutive training sessions may be more than 3 months apart (for example: you cannot train for 12 straight days and then do no more training for an entire year).

At least two sessions are in underground, or simulated underground, emergency conditions. These cannot be more than 8 months apart (for example can not do 2 consecutive days and then no more underground for a year). Finally no session can be less than 30 minutes for it to count towards the requirements in S.425(3). (July 25, 2005)

Training for supervisors

449 The training for a supervisor must include

(a) the training for mine workers; and

(b) at least 70 hours of training that includes:

(i) an explanation of the role of a supervisor in ensuring health and safety and implementing the occupational health and safety program if a program is required under Section 28 of the Act,

(ii) training on effective communication techniques and the role of a supervisor in implementing the communication procedures.

(iii) training on the role of a supervisor in health and safety management systems,

(iv) an explanation of duties and responsibilities of a supervisor in the event it is necessary to implement the emergency preparedness program required by subsection 125(1),

(v) at least 42 hours of training on ground control,

and any additional training as may be required by the manager or the Director.

Training for engineers

450 The training for an engineer who works underground must include

(a) the training for mine workers; and

(b) except for the training on ground control referred to in subclause 449(b)(v), the training for supervisors.

Training of member of committee or representative

451 In addition to any training for a committee member required under the Act or any other regulations under the Act, the training of each committee member, if any, must include

(a) an introduction to these regulations as they pertain to the committee member's role and entitlement to receive notice or access to information;

(b) effective communication techniques;

The communications techniques training may include training in interpersonal communications (i.e. at committee meetings or between committee members and workers seeking their advice or input) and written communications (i.e. to management). (October 29, 2003)

(c) inspection and investigation procedures;

(d) use and review of committee records; and

(e) procedures regarding conduct of a meeting,

and any additional training required by the manager or the Director.

Qualifications of hoist operator

452 No person is eligible to be designated as a hoist operator unless the person

(a) holds a current certificate of fitness under Section 453 to work as a hoist operator and is physically fit to discharge the duties of a hoist operator without limitations;

(b) has satisfactory knowledge of the Sections of these regulations that relate to the responsibilities of a hoist operator; and

(c) has passed an examination in subjects relating to hoist operation that assesses the person's knowledge.

Hoist operator certificate of fitness

453 (1) An employer must ensure that a person who wishes to work as a hoist operator passes an annual medical examination that is conducted by a physician who subsequently issues a certificate of fitness to the person to work as a hoist operator.

(2) A certificate of fitness to work as a hoist operator expires after 12 months.

(3) Before returning to work as a hoist operator after requiring medical attention by a physician, a person must obtain a new certificate of fitness to work as a hoist operator.

Qualifications of blaster

454 (1) No person is eligible to be designated as a

blaster unless the person

(a) has passed an examination that assesses the person's knowledge of the content of the courses required for a mine worker;

(b) has passed an examination that assesses the person's knowledge in subjects relating to work with explosives;

(c) has satisfactory knowledge of the Sections of these regulations that relate to the responsibilities of the use of explosives underground;

(d) has performed at least 1000 hours of work in blasting operations and can demonstrate experience in drilling, loading explosives, priming charges, making blasting connections, connecting delays or sequencing devices, and initiating blasts;

(e) if at a coal mine, meets the qualifications for a mine examiner in a coal mine.

Qualifications of mine rescue worker

455 No person is eligible to be designated as a mine rescue worker unless the person

(a) holds a certificate in advanced first aid as defined in the *Occupational Health and Safety First Aid Regulations* made under the Act;

(b) has passed an examination that assesses the person's knowledge of the content of the courses required for a mine worker;

(c) has passed an examination in subjects relating to mine rescue work that assesses the person's knowledge of the content of the mine rescue courses required by the job training program;

(d) holds a current certificate of fitness under Section 456 to work as a mine rescue worker, and is physically fit to discharge the duties of mine rescue worker without limitations;

(e) if at a coal mine, has at least 1 year of experience working underground;

(f) has completed any training required by these regulations; and

(g) has satisfactory knowledge of the Sections of these regulations that relate to the responsibilities of a mine rescue worker.

Mine rescue worker certificate of fitness

456 (1) An employer must ensure that a person who wishes to work as mine rescue worker passes an annual medical examination that is conducted by a physician who subsequently issues a certificate of fitness to the person to work as a mine rescue worker.

(2) A certificate of fitness to work as a mine rescue worker expires after 12 months.

(3) Before returning to work as a mine rescue worker after requiring medical attention by a physician, a person must obtain a new certificate of fitness to work as a mine rescue worker.

Qualifications of mine rescue team captain

457 No person is eligible to be designated as a mine rescue team captain unless the person

(a) has completed the training for mine rescue workers; and

(b) if at a coal mine, has completed the training required for a mine examiner.

Designation and qualification of mine rescue trainer

458 No person is eligible to be designated as a mine rescue trainer unless the person is

(a) designated as a mine rescue worker; and

(b) if at a coal mine, designated as a mine examiner.

Qualifications of mine workers in coal mine

459 No person is eligible to be designated as a mine worker in a coal mine unless the person

(a) is at least 19 years of age;

(b) has at least 6 months of experience in a coal mine;

(c) has had training and experience underground in a coal mine in the cutting, shearing, boring and loosening of coal by hand, machine or otherwise, for the production of coal;

(d) has satisfactory knowledge of the Sections of these regulations that relate to the responsibilities of a mine worker in a coal mine;

(e) has passed a practical examination that assesses the person's skill level; and

(f) has passed an examination that assesses the person's knowledge of the content of the training courses required for a mine worker in a coal mine.

Qualifications of manager at a coal mine

460 No person is eligible to be designated as a manager at a coal mine unless the person

(a) holds a degree in mine engineering or the equivalent from a university accredited by the Canadian Engineering Accreditation Board;

(b) has 5 years of experience in coal mining, of which at least 1 year was as an underground manager or at least 3 years were in a supervisory capacity underground; and

(c) has a satisfactory knowledge of the Act and these regulations.

Qualifications of underground manager at a coal mine

461 No person is eligible to be designated as an underground manager at a coal mine unless the person

(a) has completed grade 12 of the public school system or the equivalent;

(b) holds a certificate in advanced first aid as defined in the *Occupational Health and Safety First Aid Regulations* made under the Act;

(c) has received a formal education in mining subjects acceptable to the Director;

(d) has at least 5 years of experience in coal mining, of which at least 1 year has been underground; and

(e) has satisfactory knowledge of the Act and these regulations.

Qualifications of intermediate supervisors at a coal mine

462 (1) If the hierarchy of supervisors at a coal mine includes a level of supervision between the manager and the coal mine underground manager, a supervisor at that level must be a competent person who has completed job training for coal mine managers, and meets the qualifications for a coal mine manager specified in Section 460.

(2) If the hierarchy of supervisors at a coal mine includes a level of supervision between the underground manager and a first-line supervisor, a supervisor at that level must be a competent person who has completed the training for underground managers, and is designated as an underground manager.

Qualifications of supervisor at a coal mine

463 A first-line supervisor responsible for a section at a coal mine must be designated as a supervisor and must

(a) have completed grade 12 of the public school system or the equivalent;

(b) hold an advanced first aid certificate as defined in the *Occupational Health and Safety First Aid Regulations* made under the Act;

(c) be designated as a mine examiner, or hold a diploma or certificate from a correspondence, technical or mining school acceptable to the Director, certifying that the person has satisfactorily completed a course of study in mining subjects, or hold a degree in engineering from a college or university acceptable to the Director;

(d) have at least 3 years of experience in coal mining, of which at least 1 year was underground, or, if a college graduate, have at least 12 months of experience in and about a coal mine; and

(e) have a satisfactory knowledge of the Act and theses regulations.

Qualifications of mine examiner at a coal mine

464 No person is eligible to be designated as a mine examiner in a coal mine unless the person

(a) is able to write intelligible reports;

(b) holds a certificate in advanced first aid as defined in the *Occupational Health and Safety First Aid Regulations* made under the Act;

(c) has at least 3 years of practical experience in and about a coal mine, 2 years of which were underground; and

(d) has a satisfactory knowledge of the Act and these regulations.

Qualifications of surveyor in a coal mine

465 No person is eligible to be designated as a surveyor in a coal mine unless the person

(a) holds a bachelor's degree from a survey program acceptable to the Director; and

(b) has 24 months of experience underground in coal mining, of which at least 12 months were with a survey crew.

Qualifications of engineer in a coal mine

466 No person is eligible to work as an engineer underground in a coal mine unless the person

- (a) is an engineer within the meaning of the *Engineering Profession Act*;
- (b) has completed any training required by these regulations; and
- (c) has satisfactory knowledge of the Act and these regulations.

Qualifications of coal mine electrician

467 No person is eligible to be designated as a coal mine electrician, unless the person

- (a) holds a certificate of qualification under the *Apprenticeship and Trades Qualifications Act* as
  - (i) an industrial electrician,
  - (ii) a construction electrician, or
  - (iii) a mine electrician;
- (b) has completed any training required by these regulations;
- (c) has worked for at least 24 months under a coal mine electrician; and
- (d) has satisfactory knowledge of the *Act* and these regulations.

Qualifications of coal mine mechanic

468 No person is eligible to be designated as a coal mine mechanic, unless the person

- (a) holds a certificate of qualification under the *Apprenticeship and Trades Qualifications Act* as
  - (i) an electric motor system technician,

- (ii) an automotive service technician,
- (iii) a heavy duty equipment technician,
- (iv) an industrial instrument mechanic,
- (v) an industrial mechanic (millwright),
- (vi) a mine mechanic,
- (vii) a truck and transport mechanic, or
- (viii) a farm equipment mechanic;

(b) has completed any training required by these regulations;

(c) has worked for at least 24 months under a coal mine mechanic; and

(d) has satisfactory knowledge of the Act and these regulations.